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JUNE 1952

American Engineer

IN THIS ISSUE . . .

Point Four—Global Giveaway or Path to Peace?

By Eric Johnston,
Noted Business Leader

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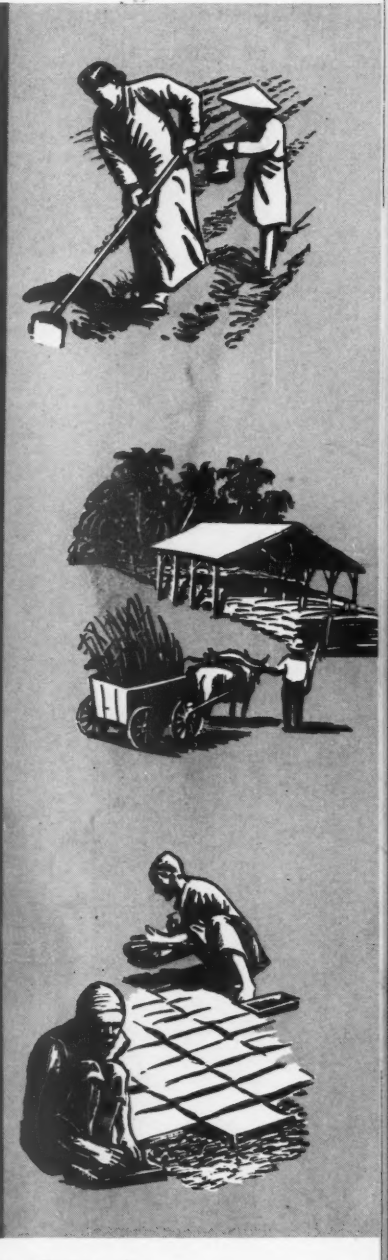

Eric Johnston gives cogent reasons why engineers have great stake in Point 4

. . . and eleven other features of interest to professional engineers

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American Engineer

Letters

Poll On Unity? . . .

Dear Editor:

In the interests of real Unity in the Engineering profession may I be allowed to submit the following thoughts for consideration.

To many of us the crying need of engineers today is one paramount society that will truly represent all qualified engineers both professionally and technically at local, national, and international levels. It should be an integrated society, and not merely a banding together of existing societies into a federation which neither represents all qualified engineers nor permits direct and democratic election of officers and directors by the individual members.

Many of us in the grass roots are disappointed in the four unity plans (A, B, C, D) so far proposed and would like to see at least one other plan considered. We are also disappointed that the individual members have had little or no opportunity to study all plans, compromises, or worthy minority ideas.

Apparently the Exploratory Group in its report of December 1950 expected individual members to have ample opportunity to express their ideas on unity. This does not seem to have been done generally and many of us feel that we are being forced to consider plans that could be improved for the benefit of engineers. I have written the Exploratory Group on this and suggested that each individual member of at least the 15 national societies that make up the Exploratory Group be polled to learn his wishes after he has had ample opportunity to study all plans, compromises, and worthy minority ideas. Among the latter there is an admirable plan (called Plan E) that has been submitted by the Florida Section of ASCE. Unless engineers can be sure of what they want there will always be dissatisfaction and disunity.

At a very recent regional meeting of the American Society for Engineering Education, at which I spoke on the Unity situation, I was surprised to learn of the vital interest this large group of engineering educators had in the subject; of their almost unanimous dissatisfaction with the Plans A, B, C, and D; and their desire for more information and a better integrated plan to consider. A resolution was passed unanimously to that effect and forwarded to the national ASEE secretary. It turned out that only 5 out of the group had seen or heard much about the four plans before my talk. They were also keenly interested in having a plan that would be a real integration of technical and professional interests and one in which the individual could vote directly for its officers and directors.

I am interested in real unity and not further disunity. I intend to support wholeheartedly a plan that the majority of engineers favor. Some of us want to be sure, however, that engineers have adequate opportunity to express their wishes on the plan they want. Such can hardly be done without a poll, or if they are told it must be one of the four plans or nothing.

T. H. Evans, P.E.,
Dean of Engineering,
Colorado Agricultural & Mechanical College,
Ft. Collins, Colo.

Beauty and P.E.'s . . .

Dear Editor:

After threatening violence, I was able to get my wife to surrender the May issue of the American Engineer, and let me read it first.

Reading Engineer Harold Kaiser's article in Professional Postscripts about "Engineers Culture" justified the matrimonial strains I put on my family life.

My interest in this article stems from early childhood. Long before I knew there was a profession called engineering, my associates were very liberal with their expressions of sympathy and as they put it, "He has absolutely no sense of beauty."

Years later I attempted to stop this flow of sympathy by writing a group and explaining my idea of beauty. I told them that my idea of beauty goes beyond the surface. When they see a tree, they see a mass of green foliage attached to a stem of brown bark. When I see a tree, I see lumber for the future; lumber that will provide comfort and shelter for some family.

When they hear music it is a sound that beats a pleasing rhythm on the ear drums. When I hear music, it may be a shattering blast removing a misplaced mountain that is hampering our transportation and thus obstructing civilization.

When I wrote this article, it did not have the desired effect. It brought a flood of sympathetic replies. I must admit that all this tends to make me a pessimist. I see little hope of teaching society real culture when they insist it must be bounded by the retina and ear drum.

C. C. Townsend, P.E.,
Daly City, Calif.

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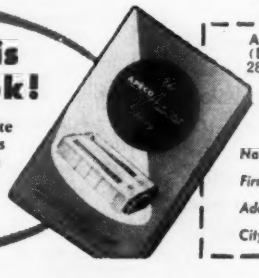

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Professional News in Capsule Form

Unethical Firms • Morgen Appointment • VA Needs Engineers • Eric Johnston & Convocation • Wheeler Award • Cleary Death • Recent Court Cases

"Employment agencies posing as private engineering firms are costing the Nation's taxpayers millions of dollars," L. L. Dresser, NSPE President, said in a statement just released.

"These firms enter into contracts merely to supply engineering employees," he pointed out. "They do not provide engineering services as do reputable private firms, but simply recruit and place engineers at exorbitant fees. These fees are passed along by companies working on defense contracts and ultimately are paid for by the taxpayer. *The fees do not represent remuneration for engineers, but are middleman charges.*"

NSPE thinks that this practice is unethical, and believes that recruitment of engineering personnel for a third party should be left to legitimate employment agencies.

* * *

Dr. Ralph A. Morgen, prominent NSPE'er of Gainesville, Fla., and director of the Engineering and Industrial Experiment Station of the University of Florida, has been appointed to the staff of the Division of Mathematical, Physical and Engineering Sciences of the National Science Foundation. Dr. Morgen will begin his new duties on June 1, 1952, when he will be in charge of the Foundation's support program in the engineering sciences.

* * *

The Veterans Administration needs engineers, too. In their new Pamphlet 5-15, the agency outlines many attractive offers. It is reported that engineers are needed to "design, construct, maintain, and operate hospital buildings, quarters, and other structures, grounds, utility plants, and distribution systems essential to provide modern medical care and treatment . . ."

Graduate engineers interested should execute a SF 57, Application for Federal Employment (available at post offices, VA installations, or local U. S. Civil Service offices), and mail to Office of Personnel, Director, Recruitment and Placement Service, Veterans Administration, Washington 25, D. C.

Eric Johnston, noted business and government leader, is expected to address the meeting sponsored by the NSPE at the Convocation of the Centennial of Engineering, Chicago, Ill., on September 5.

* * *

Walter H. Wheeler, former NSPE National Director from the Minnesota Society, and well-known Minneapolis consulting bridge and building engineer, was presented the Outstanding Achievement Award of the University of Minnesota at the annual alumni banquet.

* * *

Leo M. Cleary, P. E., Washington, D. C., professional engineer, and former Treasurer of NSPE, is dead. He was Secretary of the District of Columbia's Registration Board and very active in professional matters.

* * *

Recent court decisions and actions regarding engineering registration laws have focused attention on several highlights of the state laws involved. One of the more significant court rulings has again pointed out the danger to the public in using unqualified personnel in work requiring professional engineering judgments.

This phase of recent developments came out of a suit by landowners in California following extensive damage to their property after a flood in 1937. The damage flowed from a break in a levee which had been repaired in 1934 by the Army Corps of Engineers. The United States District Court for the Northern District of California found that the break was attributable to faulty construction methods and noted that supervision of the work had been under the jurisdiction of two inspectors who were not registered professional engineers. Federal Judge Dal M. Lemmon stated that the Corps of Engineers should have had a registered engineer in charge of the work of heightening and strengthening the levee. "When the sacrifice of human lives and of millions of dollars of property is involved, it seems penny-wise and pound-foolish to cut corners," the judge stated.

The question of constitutionality of a state registration law and particularly the legality of registration by branches of the profession has been the subject of recent litigation in Colorado. A state district court ruled in 1949 that the state board was outside its authority in attempting to publish a roster of registered engineers, indicating registration by branches of the profession. This decision was appealed to the State Supreme Court but prior to the high court's review the legislature in 1951 revised the state registration law specifically authorizing registration by branch of practice and the printing of a roster showing the branch of the profession in which the registrant is authorized to practice.

A motion to dissolve the 1949 injunction in light of the 1951 amendments led, however, to a new ruling holding that the 1951 amendments were unconstitutional on the ground that they constituted discriminatory and unreasonable police action by the state. The court recognized the undoubted right of a state to protect the safety and welfare of the people through a registration procedure for persons engaged in professional activities. The court also termed the efforts of the engineering profession to raise its standards as "a praiseworthy objective" but, after reviewing court

(*Continued on page 29*)

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American Engineer

JUNE
1952

"There is one road to rapid recovery of the nation from our present burden of rearmament. That is to increase our productive power by new technologies and new inventions."

—Herbert Hoover

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The engineer who had to search for a job in the depression-ridden thirties may well envy today's graduate who has many reputable employers bidding for his services.

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By Nathan W. Dougherty, Dean of the University of Tennessee's College of Engineering. There are still plenty of frontiers left for the engineer who looks for them, says this distinguished educator and NSPE Vice President.

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An Iraqi farmer tills his field with an inefficient wooden plow. To turn over the soil effectively he must go over the same spot several times.

Hydraulic plow is demonstrated to students at the Central Tractor Organization School in New Delhi, India by an engineer. Through the Point 4 Program the United States is cooperating with the Government of India in training its citizens in the use of modern tools.

Point 4 — Global Giveaway or Path to Peace?

BY ERIC JOHNSTON
Chairman, International Development Advisory Board

One aspect of the Point Four Program we must expand is the flow of private capital to underdeveloped nations, Eric Johnston, newly appointed Chairman of Point Four's Board of Directors, says. Government projects alone cannot do the job that needs to be done, he believes. Read the latest about history's biggest engineering program.

PROBABLY no governmental program ever devised has had more misinformation spread about it than Point Four. At some time or other we have heard it described as a scheme to provide a quart of milk to every Hottentot, a global dole, a world-wide WPA, or a handout that is draining away our resources.

On the other hand, the Russians, behind the Iron Curtain, have no love for Point Four, either. They call it dollar diplomacy dressed in 1952 clothes or Yankee imperialism masquerading as altruism.

You know as well as I do that, although these labels may be catchy, they are anything but accurate. The simple truth is that Point Four is a logical and inexpensive way for us to help ourselves by helping others.

When the President asked me to assume the Chairman-

ship of the International Development Advisory Board, which is a kind of Board of Directors for the Technical Assistance Program, I accepted because I believe that this program presents the greatest challenge facing us today. Properly guided, it can bring great good to the world, and can help stabilize the position of the United States and free men everywhere.

I am happy to accept the invitation of the editors of the AMERICAN ENGINEER to discuss some of the latest developments of Point Four with you. To my mind, it is especially necessary that the engineering profession be informed on our policies and programs. If they are to be successful, engineers, perhaps more than any other single group, will be responsible for their success.

Looking at the Point Four program realistically, one is immediately struck with the fact that very few of our citizens seem to really understand what it is or what it is trying to do. If they did, I feel that most of the criticism of it would disappear—simply because so much of the criticism is irrelevant.

As a practical businessman, who has successfully operated a number of companies of my own over a period of years, I think that I should be immune from charges that I am a global-planning dreamer or the advocate of a world-wide WPA. Let us examine Point Four in the light of what it tries to be, what it is, and how it has been functioning since the President assigned its responsibility to the Secretary of State in September of 1950.

The law directs the Secretary of State to appoint an International Advisory Board of not more than 13 citizens representing civic and professional interests concerned with Point Four. A full-time administrator is also provided for by law. This position is now vacant due to the unfortunate death of Dr. Henry G. Bennett, who was Administrator until December, 1951.

THE fact that Point Four is designed to give technical and engineering assistance to underdeveloped countries is well known. Not so well known is the fact that Point Four is a relatively inexpensive and small program. It is not a give-away. It is a self-help program. Only those nations who are willing to pay their fair share of the cost and who request such assistance are eligible to participate.

All this seems rather high-level and vague. Let's be specific and see how Point Four really works.

India is one of the countries to which we have extended technical assistance.

One of the agricultural extension workers assigned to India undertook to demonstrate to the farmers of his area the use of improved seed, better methods of cultivation and the use of modern tools. With this technical assistance the farmers of the region boosted their wheat production from 13 bushels to 26 bushels per acre and increased their potato yield from 119 to 245 bushels per acre.

Jordan. American equipment clears ancient Roman cistern. The Governments of Jordan and the United States are jointly undertaking a Point 4 Program to alleviate Jordan's water shortage.

I think we can appreciate the meaning of those figures a little better if we compare them to our own production. Our national average in 1950 was about 16½ bushels of wheat per acre and 185 bushels of potatoes per acre.

To be sure, the case I have mentioned represents only the work of one man in a small area of a sub-continent. But it is that very kind of example, set by one man or one small area, that brought our own great advances in scientific agriculture. And what did it cost?—the salary of one man.

I mention this example for another reason. The production of more food and fibre, better agriculture, must be the foundation stone for the economic development of all the free world.

Here in the United States our great industrial civilization could not exist and could never have been developed without first a productive agriculture. Less than a century ago it took one family out of two in this country to grow the crops we needed. Today, one family out of eight can do that job.

What is the situation in other lands? In the free world to which we still have access, and from which our support must come, more than a billion people of Latin America, Asia, and Africa are desperately poor and continually hun-

Below, left. American engineers inspect irrigation ditch in Haiti. Right. Two American engineers help Iranians lick water problem.

Point IV Engineers Needed

Engineers and industrial managers are being sent abroad by the Government under the Point IV program, as part of the job of raising the level of industrial technology in underdeveloped countries. This will augment the results of private investment and private industry in these lands.

There is a demand for men of topflight experience and ability for Latin America, the Middle East, South Asia, and elsewhere. Their function is to advise local industry, and to develop facilities for training management, engineers, and technicians to carry on the process of raising living standards through production.

The work involves both the improvement of existing plant and methods, and the launching of new industries. In every case, such men are recruited and placed only at the request of the government of the host country. Their activities are carried on under joint responsibility of the local government or industry associations and of the U.S. Embassy.

The men vary from consulting and management engineers, who cover practically the entire range of industry, through the chemical, electrical, mechanical, civil and other branches of the profession. Assignments generally are for a year, with the possibility of renewal. Family may accompany the man to his field post; the cost of their transportation is paid, and an allowance made for housing and upkeep.

Members interested should write Headquarters, NSPE, which will communicate with the proper official of the Government.

gry. Eight out of ten live on the land. But they cannot grow enough to feed themselves—let alone the rest of their people.

That constant hunger takes a terrible toll. These billion persons have a life expectancy of 33 years compared to 68 in the United States.

In these same lands, eight out of ten people cannot read or write. Two out of every three of these men, women and children suffer all their lives from diseases we know how to prevent.

Hunger, disease, illiteracy—these are the things we are attacking in our program of economic partnership. And with good reason. We cannot expect hungry and diseased people to be self-sufficient.

LAST spring, we sent two entomologists to Iran when that country was hit by its worst locust plague in 80 years. Using small planes and apparatus for spraying insecticide, these men were able to save 54,000 acres of crops in 18 different localities.

In some areas of Liberia, food was so scarce that cabbage was sold by the leaf—not by the head. A small onion cost a nickel. The scrawny chickens laid eggs the size of robins' eggs.

Just the effort of one extension worker changed all that. Villages that formerly knew only want, now grow enough food for themselves and even have vegetables left over to send to market. Several hundred roosters of good strain were imported. Their progeny furnished the brood stock for a developing poultry industry with chickens that lay hen-sized eggs.

These chickens were considered so remarkable that persons came from miles around, traveling by canoe, walking, or by whatever means, just to get a look at them. And when they came they were shown modern methods of poultry husbandry, given a few eggs to start better flocks of their own.

This, it seems to me, is enough to indicate that Point Four is the very real means of bringing help and self-sufficiency to millions of otherwise dependent people. We must remember that over half of the world's population lives in a state of semi-starvation. We cannot reasonably expect that these people will want to do nothing to improve their lot. When they see their legitimate aspirations for a better life cut off, with no prospect of help from the free world, they fall easy prey to revolutionary doctrines.

That, unfortunately, is one of the realities of life whether we like it or not. The humanitarian approach is, in this case at least, the most practical. Not only will Point Four make dependent peoples self-sustaining, it will help push back the rushing tide of Communism among the backward nations of the world.

Point Four is a humanitarian program, and it is upon this high plane that I think it should be conducted. This brings me to the main burden of this article. *Government alone cannot do the job that has to be done by the Technical Assistance program. It requires the cooperation of private investors, of communities, and individuals, from every walk of life!*

We need more people-to-people and city-to-city contact to keep Point Four from becoming an impersonal charity operation. One example I have in mind would be to have a city like San Diego, California, "adopt" a foreign city receiving technical assistance from the United States such as Beirut, Lebanon. Technicians could be exchanged between the two cities for short periods; they both are about the same size, both are apt to have similar problems. Perhaps engineers from San Diego could go to Beirut and study its problems there and give advice. Engineers from Beirut could come to San Diego and study its modern systems of sanitation, water supply, electric power supply and other modern advances.

I think that too much cannot be said for this people-to-people form of communication that adds the personal touch of friendship to our Point Four program. Members of the National Society of Professional Engineers, with their intimate knowledge of the problems involved in modernizing these ancient civilizations, many of which were using engineering projects such as irrigation 40 centuries before America was ever discovered, can lead their fellow citizens in a demonstration of friendliness toward our allies by passing along their know-how. This would be community and world service of a high order, and I commend it to the serious consideration of all of the 300 Chapters of the National Society of Professional Engineers.

But, just as government cannot and should not do the job by itself, person-to-person and city-to-city contacts, desirable though they are, cannot do it alone, either.

The flow of private capital for the development of industrially-backward areas is absolutely essential if the program is to be of lasting value. Government cannot and should not do the job alone.

NOW, of course, no one but the most naive would believe that private enterprise can work effectively in any atmosphere of instability or unfriendliness. Two things are essential, I believe, if private enterprise is to play a significant role in the program to develop the resources of nations:

First, there must be a recognition on the part of American investors that local interests in the foreign country have a legitimate right to share in the proceeds of the enterprise on an equitable basis. They have a proper claim to take part in the initial financing and to have a voice in management on a partnership basis.

Second, there must be a recognition on the part of foreign countries that they can attract private American investment only if they provide certain safeguards. The capital outlay itself must be safeguarded. And the right to withdraw earnings at a fair rate must be assured.

But with these two conditions fulfilled, I am confident that private enterprise can and will take its proper place in our program of economic partnership with the underdeveloped nations of the free world.—**End.**

"We need large numbers of engineers—chemical engineers for production, plant engineering, process engineering . . . mechanicals for design . . . civils for construction . . ."

". . . we have many openings, especially for young graduates. We make fans, heaters, welding units and motors . . ."

". . . with our vital defense contracts, we need EXPERIENCED engineers as well as young graduates."

"We have lifetime jobs . . . our industry has grown greatly within the past two years and it will continue to grow."

"New aircraft now requires 27 times as many engineering hours as were necessary in 1940. The aircraft of the future will require even more engineering . . ."

JUNE GRADUATES ENTER BOOMING PROFESSION

Engineers who walked the streets looking for work in the depression-bound thirties may well envy the young engineer entering the profession today who has many reputable employers anxious to secure his services

INTERESTED to learn what kind of job openings June graduates will face upon entering the new world of self-sufficiency, the AMERICAN ENGINEER queried a number of representative companies whose industries are short of engineers and asked for details about openings. The article will also be of considerable interest to presently employed engineers.

In so vast a field as engineering, it is obviously not possible to cover all kinds of possible opportunities. Random examples from many fields have been chosen, and a fairly comprehensive "run-down" on one—the aircraft industry—was made because it is probably the fastest-growing user of engineering talent.

Engineers who knocked on doors looking for a job in the depression-ridden thirties may well envy the offers which come rolling in to today's graduates.

Not only are jobs galore open at the beginning level, but employers constantly emphasize that the positions are not of the war emergency type, but are "lifelong" opportunities.

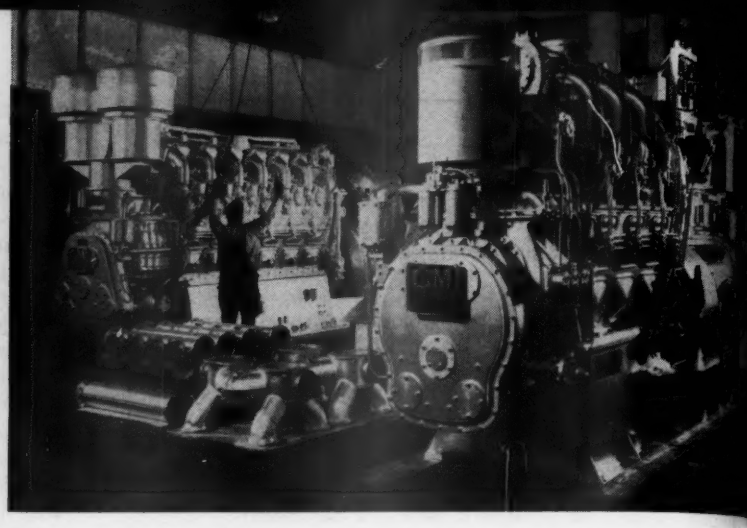
The AMERICAN ENGINEER made a survey of some 30 leading firms currently in the market for engineers. These range from firms making atomic weapons to mining coal, from chemicals to aircraft to electronics. Everywhere, the answer was the same. On the lower levels, at least, opportunities for young engineers are the best in history. The outlook seems even better. An increasingly complex technology is requiring more and more engineers. The outlook for a post rearmament slump is virtually nonexistent.

Typical of the response from the aircraft industry were the comments of R. C. Marks, Manager of Engineering of the Bell Aircraft Company, who said:

"The aircraft industry in general is suffering considerably from the short supply of trained engineers. As you are probably aware, the country was flooded a few years ago with "good advice" to the effect that engineering was to be for many years an unprofitable, overcrowded field. Much has been done more recently to dispel these erroneous ideas, but it will be some time before the weight of current public relations work by the industry can expect to be felt.

"In general, the industry is in a position to employ a wide range of specialists. No longer do we look simply for aeronautical engineers. Our technological advances have made imperative the widespread use of men skilled in electronics, instrumentation, aerodynamics, and many other such fields. This is especially true at those com-

In June, 1952, the engineering world is an oyster for young engineers to savor.



Above, left. Navy Panther jets require much engineering. Right. These Diesels, made by GM, are for the Navy. The 12-cylinder engine on left delivers up to 1,250 h.p.

panies in our industry, such as Bell Aircraft, which are involved in large research and development programs in the fields of supersonic aircraft and guided missiles.

"This has meant, of course, the aircraft industry has found itself in competition for men who, prior to World War II, would never have expected to have found opportunities with us. The rapid advances taking place in other fields such as radio and television, automatic computing machinery, and the atomic energy program have made competition extremely strong, particularly for electronics engineers and for those rare individuals who are capable of handling significant research problems."

T. J. Gray of the Curtiss-Wright Corporation, reports that his company is in the market for 200 graduate engineers.

J. M. Hollyday, Employment Manager of the Glenn L. Martin Company, points out that one reason the shortage of graduates from this year's engineering class has hit the aircraft industry so hard is that, as the industry matures, it becomes more complex.

"Less than 200,000 engineering man-hours were required for a bomber during World War II," Mr. Hollyday said, "but today more than three million engineering man-hours are needed to design a jet bomber." Martin reports a need for engineers in structures, aerodynamics, equipment and installation design, cabin conditioning, motor or power generation, electronics and electro-mechanical research and development, and engineering report writing.

The Goodyear Aircraft Company, C. C. Jones, Manager, Salary Personnel Department, reports that, in cooperation with its parent corporation, the Goodyear Tire and Rubber Company, the company has set up a recruiting program covering 138 engineering schools over the nation and has openings for engineers of practically all specialties.

Keith Baker, Public Relations Manager of the Chance Vought Aircraft Company, explains his company's and the industry's need for engineers this way:

"Since 1945 the aircraft industry has had increasing requirements for engineers for research, design, development and testing in such new and expanding fields as gas turbine research, avionics, supersonic aerodynamics, armament, automatic fire control systems and artificial feel systems for controls. One of the major reasons that the aircraft industry now offers unusual opportunities to engineers is because of the increased complexity of the product, the design of which requires the application of the latest advances of all branches of engineering and science in the never ending search for an airplane that can fly higher, farther, faster and more efficiently than any other aircraft. Moreover, new fields have been opened in the design of aircraft such as the guided missile, helicopter and atomic powered aircraft.

"A prototype of a new aircraft design now requires twenty-seven times as many engineering hours as were necessary in 1940. It is reasonable to believe that a greater number of man hours will be required to produce the piloted and pilotless aircraft of the future. Few other industries offer the engineer the chance to use as much of his scientific know-how on a broad scale as does the aircraft industry. With each new aircraft requiring greater engineering skill than its predecessor, the industry offers ever widening possibilities for engineers to utilize their knowledge and imagination."

W. L. Aldrich, Assistant Engineering Personnel Manager of Northrop Aircraft, Incorporated, reports the need for some 300 engineers for the company's aircraft Engineering Division and an additional 200 for its guided missile program. He says:

"At this writing, we have openings in our aircraft engineering division for 230 graduate engineers and technical specialists. This figure represents such classifications as aerodynamicists, dynamicists, thermodynamicists, weight and stress engineers, laboratory analysts, research engineers, servo-mechanists, engineering designers, and engineering draftsmen. The above mentioned figure must be qualified in one respect however; that is, with regard to our current rate of hire, we cannot actually secure personnel to fill these openings currently. Therefore, the process is a matter of gradually adding to our strength as qualified applicants become available. Because it is our present goal to add approximately 300 persons to our engineering division during the next nine months, we will increase the existing list of openings by some 70 positions in the above categories.

"In addition to our aircraft engineering division, we must also give consideration to the separate effort being made in our guided missiles program. This project is now largely in the research and development stage and therefore requires considerable emphasis on engineering. In most respects, the types of personnel utilized in missile work are similar to those working in piloted aircraft work, and the qualifications for similar job classifications are substantially the same. Our present plan is to add approximately 200 engineering personnel to our guided missiles division.

Above, left. Here the Dodge firm works on military orders for $92,000,000 worth of trucks. Right. Civilian production must also be maintained. Here Cadillacs roll off line in Detroit.

"The matter of wages and salaries for holders of college degrees would, of course, vary with each individual. The determination of a beginning rate for those with little or no vocational experience is generally established by an evaluation of the curricula quality and scholastic efficiency. The following wage and salary hire rates are applicable in most instances to the holders of degrees:
Bachelor's Degree $1.89-$1.93 per hour
Master's Degree $375.00-$425.00 per month
Doctoral Degree $450.00-$550.00 per month"

Earl Blount, of the Public Relations Department of North American Aviation, Incorporated, reports that engineers or recent engineering graduates of nearly all fields can qualify for employment with his company. Furthermore, he reports, the engineering department of his company offers stable employment. Not only did employment not decline in the engineering department after V-J Day, but it has climbed from a World War II peak of 1,400 to the present high of 7,000. Engineers who hunted jobs in the depression may be interested in the liberal employment terms (fairly typical of the industry). In addition to relatively good pay, the company will refund the cost of any approved course of study after its successful completion—this includes public speaking and law as well as engineering—applicants may apply by mail, and, if successful, will receive transportation allowances for themselves, one dependent, and their household effects from any point in the United States.

An offshoot of the aircraft industry, the helicopter industry, is enjoying boom times. W. J. Hatcher, Employment Manager of the Piasecki Helicopter Company, largest in the field, reports openings for all kinds of engineers, with an accent on youth.

The Georgia Division of the Lockheed Aircraft Corporation, W. R. Parks, Engineering Employment Interviewer, reports that that company's successful college recruiting program has filled substantially all the vacancies available, "Although we're always glad to get an application from a good man."

Mr. Parks reports a need for experienced engineers, particularly in design. "It is my understanding that the California Division of Lockheed needs young engineers more urgently than we do," Mr. Parks said. "They seem to be in need of engineers of virtually all kinds."

The Hamilton Standard Division of United Aircraft Corporation, W. F. Dwyer, Employment Supervisor, reports a great many openings for engineers and young engineers in Windsor's Locks, Connecticut.

Moving from airplanes to electricity, both the Emerson Electric Manufacturing Company and the General Electric Corporation report openings for engineers and especially for young graduates. Though on a smaller scale than in the aircraft industry, Emerson Electric has two divisions, electrical and armament. Openings for both experienced engineers and engineering graduates are reported in each.

THE company makes fans, heaters, arc welding units and a large variety of fractional horsepower motors. Its armament division designs and produces aircraft turrets and electronically-operated fire control systems.

D. E. Irwin, Technical Personnel Development Services of the General Electric Company says:

"Our policy in General Electric is to employ each year a number of college graduates who are placed on the appropriate program where they receive on-the-job training together with pertinent educational courses. This approach permits each individual to become further acquainted with problems of industry together with job opportunities commensurate with his own abilities.

"Our industry is involved in the manufacture of all kinds of electrical equipment and machinery, allied products, including electronics, chemicals, home appliances, nucleonics engineering, jet engines, steam turbines, etc.

"The technical graduates eventually find places in all phases of our business such as design and development engineering, research, manufacturing, production, sales, marketing, management and other related positions."

R. T. Queen, Employment Manager of the Emerson Electric Manufacturing Company is in charge of recruiting engineering personnel.

THE Monsanto Chemical Company, Robert F. McCoole, Technical Personnel Manager, reports as follows:

"Monsanto is seeking large numbers of engineers—chemical engineers for production, plant engineering, process engineering, pilot plant, development, application, and sales work; mechanical engineers for design, maintenance, construction, mechanical development and power engineering; electrical and civil engineers for various phases of design, maintenance, construction, and plant engineering.

"The projected needs of the company are large, in view of our commitment for sizable company-wide expansion,

(*Continued on page* 32)

The Engineer In A Troubled World . . .

FEAR AND FREEDMAN'S BREW

By N. W. DOUGHERTY, P.E.,
Dean of Engineering, University of Tennessee
Member, NSPE

WHEN we speak of frontier we think of the days described by the first Roosevelt in his *Winning of the West;* we think of the forty-niners as they trekked across the plains, the mountains, the desert and finally landed in Oregon or California. Typical of the early period was Daniel Boone, who left Yadkin, North Carolina to get room at Boonesboro, Kentucky; then he migrated across the Mississippi to Missouri to get more room. When the population gathered around him he fled to new areas to get fresh air, to get room for his traps, to find new fields of game, and to live without molestation.

Mark Twain, in *Roughing It,* has told us about the pony express; he has told the story of travel from St. Joseph, Missouri to the gold fields; he has also told us about steamboating on the Mississippi. Those were the days of the geographic frontier; now they are gone never to return again.

In our day we seem to pass from crisis to crisis; we pass from indispensable man to indispensable man; we let our political thinking becloud our view of the new age which is upon us. For twenty years we have fought depressions, wars, new deals, fair deals and the welfare state until we are about ready to barter our freedoms for a little economic security.

In the mid-thirties we were going back to hand labor; our technology had so outrun our knowledge of living that we must take a scientific holiday to let living catch up. We built up the Frankenstein monster and turned him loose on society. All the time we forgot that we knew so much better how to live than we were living, that we thought knowledge of living was lagging behind.

Let me mention one more type of lament which has developed during the last decade. I will quote from a book titled: *The Failure of Technology*:

> **The drive for technical perfection is a self-impelled and irrevocable process, which, if left to itself, must end in a completely regimented and mechanized society that lives in a state of exhaustion, both of natural and human reserves.**
>
> **For exploitation of nature produces not wealth but scarcity. Scarcity, in turn, stimulates further perfection, and such striving for perfection again leads to new and deeper inroads into our natural resources. The results are still more scarcity, faster obsolescence of productive means owing to new and more efficient processes, more economic instability, and more regimentation. Then the road goes from social strife, economic and social insecurity and fear, to ever present threat of war in which all industry and all productive effort become tools of destruction.**
>
> **—Friedrich Georg Juenger, *The Failure of Technology.***

A minority is very vocal about calamity, when on every side we see machines, roads, automobiles, trucks, tanks, cannon and airplanes; we see the expansion of industry, the increases in shipping, the production of goods, and each day brings a new development in science. Surely there is a plan and a pattern if we can only find it.

I am an engineer and I fear not the age of technology. It is a new age which must be lived in the same pioneer spirit which felled the timbers, built the railways and spread manufacturing from the Atlantic to the Pacific. New frontiers are before us which are as challenging as were those when Eli Whitney made his first cotton gin.

I take my text from the fifth article of the *Faith of the Engineer,* and I will try to relate it to this changing world, and I will try to find the place of the engineer in it:

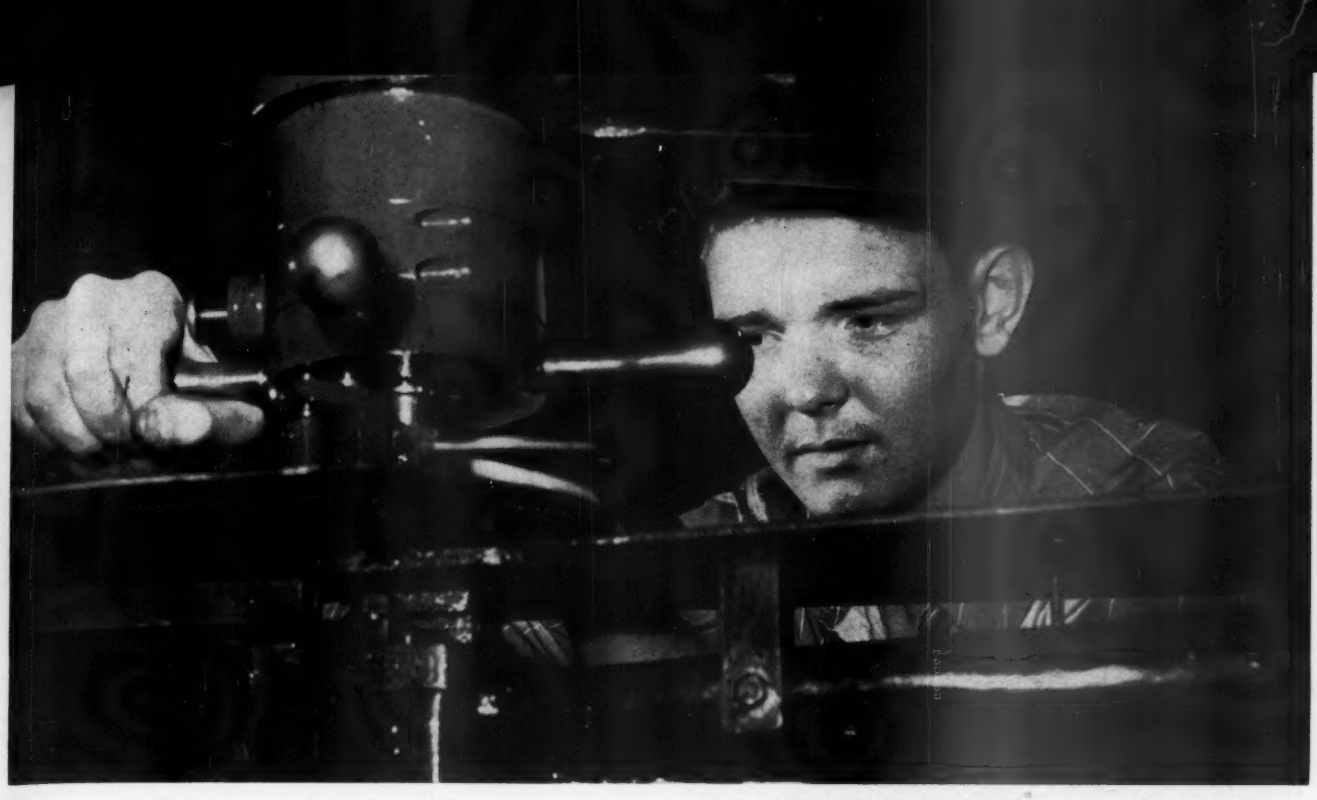
> **Since the Age of Stone, human progress has been conditioned by the genius of my professional forbears. By them have been rendered usable to mankind Nature's vast resources of material and energy. By them have been vitalized and turned to practical account the principles of science and the revelations of technology. Except for this heritage of accumulated experience, my efforts would be feeble. I dedicate myself to the dissemina-**

About the Author . . .

Dean N. W. Dougherty, P. E., vice president-elect of NSPE for 1952-53, is Dean of Engineering, University of Tennessee. He received his B.S. from Tennessee, a C. E. and Master of C. E. at Cornell. Long interested in writing, he has had numerous articles published along with a book on the registration of engineers. An outstanding athlete in his college days, he is now much interested in the supervision of intercollegiate athletics. During his few free hours, he loves to fish the waters of the Tennessee Valley.

He will assume office as NSPE vice president on July 1.

Dean Dougherty, P. E.



Has our technology so outdistanced our knowledge of living that we approach a danger point?

tion of engineering knowledge, and especially to the instruction of younger members of my profession in all its arts and traditions.

Must the engineer mark time? Must he cast away the pioneer spirit which has been the key to progress in countless generations? We believe that the new day will have opportunity and as engineers and scientists work out their own salvation, the whole community will be benefited.

We should not have been surprised at the atomic bomb. For more than a generation scientific literature gave hints of atomic fission. About fifty years ago Pierre and Marie Curie began their studies of radium; later studies developed step by step the idea of radiation, and the amount of energy which could be involved if an atom could be burst asunder; finally by 1939 many stories had been written suggesting atomic fission.

One July 16, 1945, a group of scientists and military men were assembled in a desert region of New Mexico to witness the first historical atomic explosion on this earth. A few months later a second explosion was over the Japanese city of Hiroshima. A cloud rose 40,000 feet above the city, and scattered within a radius of a mile were 50,000 dead, and months later others were dying.

At first we were appalled; we questioned the wisdom of such knowledge and skill; then we began to take stock, to adjust ourselves to what had happened, and finally we realized that we were in a new age. Whether it will be for the better, or the worse, will depend upon our scientific and political statesmanship. We must do some hard thinking; we must take some bold actions; and most of all, we must overcome the sense of fear which has crept into our daily and national life and has robbed us of our ability to step boldly into the atomic age.

Last summer I attended a symposium at Oak Ridge, Tennessee which was designed to give engineers information on the design of an atomic pile. More than five hundred engineers, from all parts of the United States, were present. Work is in progress in many laboratories in an effort to take the next step in this new field; enough has been done to confirm us in the belief that we are destined to remember these years as the open door to a new frontier.

Time tables are in the making. The year 1960 is now set for an aircraft carrier powered by nuclear energy; an earlier date is given for a submarine or an airplane, say 1954 to 1956. Billions of dollars are being expended annually to bring this latest source of energy into useful fruition.

Other frontiers have hardly been touched. Newton, after a long life of useful discovery, remarked that he had been able to pick a few pebbles from the seashore, thus expressing for all time the possibilities of science and invention. Edison, one of the most fertile of American inventors, said that he began where the other fellow left off. This is the method of the pioneer.

AT the present time something like ten per cent of the engineers and scientists are working on research. Each year brings a new demand and adds to the quota of men necessary. New frontiers are on every hand:

> **Whether yesterday was sunny or cloudy, a June day or a day in December, enough energy fell on the earth during that twenty-four hours to serve humanity for several centuries—enough to keep the world's furnaces roasting and its refrigerators icy, to spin its wheels and refine its ores, and to fill for several hundred years every present need of power. The wheels of civilization are kept turning by energy; and all the energy, whether we draw it from a gallon of gasoline, a ton of coal, or a pound of butter comes from the sun.**
>
> **—George R. Harrison, *Atoms in Action*.**

Here is a field which is almost untouched, and yet it offers possibilities which compare favorably with atomic fission. The energy which is stored in the earth came from the sun and no doubt was produced there by atomic fission.

Since the turn of the century we have witnessed marvel after marvel; we have seen assembly line manufacture

Have new "things" become so commonplace that we take our remarkable progress for granted? Steel, above, is now used in countless operations.

develop and produce millions of motor vehicles, millions of telephones, millions of radios, and vacuum cleaners, and refrigerators and television sets. We know that in the laboratories of science and engineering new inventions are being born each day, and yet we take it all for granted. New things have become an obsession of our day. Where the Ancient Greeks had dealt in ideas, our people have dealt in ideas, machines and new things. It is interesting to recall Luke's description: "For all the Athenians and strangers which were there spent their time in nothing else, but either to tell, or to hear some new thing."

New things have become a commonplace. In my lifetime, mechanical flight has been developed so rapidly that we can hardly keep up with the changes taking place. From Kitty Hawk to the jet fighter is a long road, and to the jet bomber is still a longer road, yet it has been traveled in a few decades. Why should we be so surprised at an atomic bomb? We have been used to 100 horse power, or a thousand or even a hundred-thousand horse power, but never before have we seen pictures of a column of water and steam one-half mile in diameter rising to a height of a half mile; we have never seen a column of smoke and radiation rising to a height of 40,000 feet. *These things point to the new frontiers which are with us.*

Who were the pioneers? The men like Daniel Boone who were in the forefront of occupying the land, or men like Eli Whitney, Thomas Edison, Robert Fulton, Samuel F. B. Morse, the Wright Brothers, Charles P. Steinmetz or Charles F. Kettering? Our answer is that both groups played a real part in making America great; both groups were pioneers ever seeking new frontiers.

There is romance in the story of the Forty-niners; they pulled up from their home-sites to cross the prairies, the mountains, the desert and finally to claim a new empire on the Pacific Coast. I say there was romance in it; there was also hard work; there was a longing for freedom which bordered on lawlessness, but when assumed by the leading men of the community, the area became law abiding states.

We realize that the very nature of the times required individual action and individual responsibility, but we are not surprised that these very rugged individualists insisted on law and order. They recognized the rights of others and insisted that their rights be recognized. What were these rights they so cherished?

We answer by calling it Freedman's brew. It is not a drink made by boiling or fermentation, but rather it is a brew made by infusion, by instilling something into one's mind which changes the spirit of the individual and makes him walk like a man upon the earth. This brew had its beginnings long ago, and as the years went by it had additions until it comprises our basic freedoms of today.

King John met the barons at Runnymede in 1215; he, at their insistent request, signed a document which was later known as Magna Charta. Among other things was the statement:

> **No freedman will be arrested or imprisoned, or dispossessed, or outlawed, banished or in any way molested, nor will we set forth against him unless by lawful judgments of his peers and the law of the land.**

Here was expressed the right to be let alone, provided the activity was lawful, and its legality was to be decided by action of a man's peers and not by arbitrary authority. To English-speaking nations, this is the beginning of the freedman's brew.

Five hundred sixty-three years later a young Virginian was expressing the judgment of his peers when he wrote into the Declaration of Independence:

> **We hold these truths to be self-evident, that all men are created equal and that they are endowed by their Creator with certain inalienable rights, that among these are life, liberty, and the pursuit of happiness, and that to secure these rights, governments are instituted among men deriving their just powers from the consent of the governed.**

Here is added an ingredient which places the rights of men above men. It sets up the rule of law against the rule of arbitrary privilege. Government itself. The founding fathers were not yet satisfied. They wrote a Constitution in which they set up the form of government which was adopted in 1787, but in 1791, they amended that Constitution setting out a Bill of Rights. The convention itself had agreed that a Bill of Rights should be added, but agreement on such a bill was not possible at that time. The first congress proposed an amendment and it passed the legislatures of the states:

> **Congress shall make no law respecting the establishment of religion or prohibiting the free exercise thereof, or abridging the freedom of speech or of the press, or the right of people peaceably to assemble and petition the government for the redress of grievances.**
>
> **No person shall be deprived of life, liberty or property without due process of law, nor**

(Continued on page 34)

Accent on Activity

NSPE News Presented In Easy-To-Read News Letter Form

Leading industries have purchased more than 1200 copies of Executive Research Survey Report Number One, "How To Improve Engineering Management Communications" . . . Additional publicity has been given report in Pulp & Paper Manufacturer, Military Engineer, Electrical Manufacturing, Mechanical Engineering, Industrial Equipment News, Engineering News-Record, and others . . . **See page 16 for more on PR.**

Outgoing President L. L. Dresser visited Rhode Island, Massachusetts, Pa., N. J., & D. C. Societies on last swings around country before leaving office . . . the Chief Executive visited all but 2 State Societies during tenure . . . also included was the annual meeting of Dominion Council of Professional Engineers at Quebec where mutual problems were reviewed.

ON CAPITOL HILL: After 16 months of military service at the Pentagon, Milton F. Lunch, NSPE's Executive Assistant and Legislative Analyst, has returned to his job at Headquarters, just in time to help NSPE prepare its testimony before Senate Armed Services committee dealing with the reserve components of the Armed Forces . . . Gist of Society statement: 1. Reservists with engineering skills should not involuntarily be called to active duty unless skilled functions they perform for services are at least equal in value to those they can perform for civilian defense economy. **2. Reservists with engineering skills serving with the armed services should be used in professional work where their skills can be used to best advantage.** 3. When the armed services have a surplus of men with engineering skills, such men should be released to the supporting civilian economy.

WITH GOVERNMENT AGENCIES . . . Renegotiation regulations affect engineers working on defense contracts either as prime or sub-contractors . . . NSPE officials are working with Renegotiating Board to determine impact of regulations . . . full report in future Legislative Bulletin . . . Write for copy of Bulletin if you are not on regular mailing list . . . Another conference: Chairman of the NSPE National Defense Committee, Col. Chester A. Lichtenberg, and Executive Director Paul Robbins met with corresponding committee of AIA to discuss cooperative action on Civil Defense activities.

Don't miss article that appeared in May issue of the New Yorker Magazine on the Brooklyn Bridge . . . it is one of the publication's famous "Profiles" and mentions at some length Dr. D. B. Steinman, first NSPE prexy . . . quotes American Engineer.

ADMINISTRATIVELY SPEAKING . . . NSPE membership as of June 1: exceeds 27,000 . . . John D. Coleman, new National president, who is now lining up his Committee members, takes over robust Society . . . the Washington office has installed new Speedaumat addressing equipment for more efficient mailing operations . . . if your mailing label should require corrections as a result of the changeover, please correct and return to Hqs NSPE.

NOTE TO INCOMING CHAPTER OFFICERS: Many new Chapter officers take over on July 1 . . . they should make certain they obtain valuable CHAPTER HANDBOOK from outgoing officials . . . REQUEST: please notify Hqs NSPE of all changes of officers so that additions to handbook will reach you promptly.

What Is the Story On the Public Relations Program?

Here Is Complete Report to Date

WHEN NSPE's special public relations program was commenced last year, the "target group" selected was **industrial management.** Today, with thousands of copies of the book, **"How To Improve Engineering-Management Communications"** in the hands of the nation's industrial leaders, great progress toward contacting the group has been made.

The book, the result of a survey of 350 leading firms, is a significant work on the perplexing problem of communications. Offering practical recommendations on how the engineer and his employer can work together more closely and with more understanding, the publication has been given a warm reception by leading employers of engineers.

Here are a few of the firms who have ordered copies in bulk:

Du Pont
Firestone
Procter & Gamble
Minneapolis-Honeywell
Columbia-Southern
Socony-Vacuum
Carbide & Carbon
Sun Oil
Monsanto Chemical
Kaiser
Bendix-Westinghouse
Mathieson Chemical
General Electric
B. F. Goodrich
North American Aviation
Corning Glass
Lockheed
National Distillers
American Cyanamid
General Motors
Armour
Shell
Pittsburgh Coke
Goodyear
U. S. Metals
Aluminum Co.
Esso

Among the U. S. government agencies who will use the report are:

Dept. of Agriculture
Dept. of Commerce
Dept. of Defense
Veterans Administration

Among the educational institutions who have already ordered copies in bulk are:

University of Wisconsin
George Washington University

Giving the report wide distribution and publicity was one of the biggest jobs facing those working on the project. To make certain that it got into the hands of those who should have it, the following initial distribution of nearly 6,000 copies was made:

Survey Participants (all those industries filling out and returning first Questionnaire)
Deans of Engineering Colleges and College Libraries
State Boards of Engineering Examiners
Federal Government Department heads
All Engineering Societies
Principal Business and Industrial Organizations
Press and broadcasting

That this publicity program was successful is indicated by the amount of comment on the Report appearing in the press. Here is a partial list of magazines and newspapers reviewing the book:

Chemical & Engineering News
Steel
Iron Age
American Aviation Daily
New York Times
Business Week
Design News
Chemical Week
World Telegram & Sun
Christian Science Monitor
Chemical Engineering
Pittsburgh Press
Modern Industry
Machine Design
Agriculture Engineering

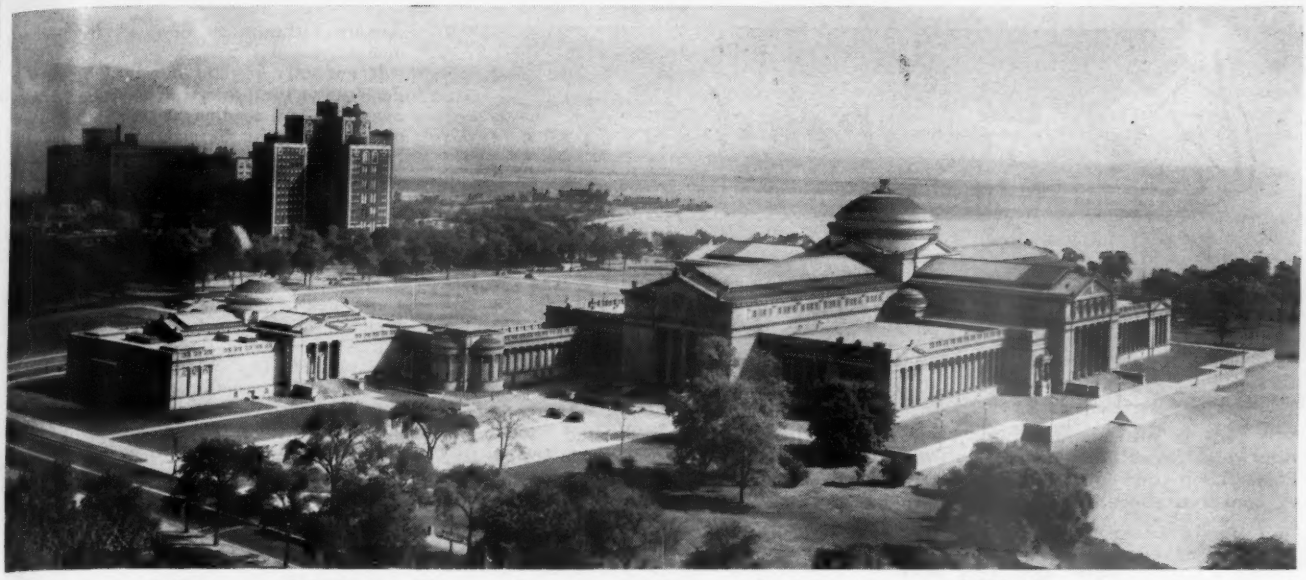
But one of the main purposes of the program was to give the individual State Society and its Chapters an opportunity to discuss the important subject of communications between engineers and employers, among themselves and with industrial leaders in their areas. To do this, a Chapter Publicity Kit was devised and distributed. The Kit contained sample news releases, a short review of the Report, copies of the Report, complete instruction, and so forth. Many Chapters have already reported interest at the local level along with considerable publicity.

Second Report and Questionnaire

The second phase of the Special Public Relations Program (the program is being financed with funds contributed by members), is now underway. A Questionnaire entitled, "The Improved Utilization of Engineering Manpower" is now being distributed to NSPE members, industry, education, government, etc.

A Second Report will be issued when results from the Questionnaire are compiled and analyzed.

These pieces of literature depict milestones in your Special PR program to date. Starting clockwise at 7 o'clock: booklet explaining program; 2 folders used in soliciting funds from members; the first questionnaire to industry; the second questionnaire to industry; the final report based on the first questionnaire.



Museum of Science and Industry, Chicago. Location of Centennial of Engineering, 1952, dramatic production and exhibit. The stage show will be presented in 1000 seat theatre located in the wing at left of the picture.

Centennial Plans Summer, Fall Programs

The Centennial of Engineering, labeled the largest activity of its kind ever held, and in progress in Chicago since the first of this year, enters the summer and fall months with even greater vigor. The dynamic exhibit of engineering accomplishments that has been viewed by thousands in the Museum of Science and Industry, will now be augmented by a dramatic stage production to be presented daily which will depict the growth of engineering through the years. This fall, from September 3-13, the celebration will hold a Convocation of national and international engineering societies, in which the NSPE will be an active participant.

The Convocation, at which time NSPE expects to present an address by the noted business and government leader, Eric Johnston, will be the greatest gathering of engineers ever held in the world.

Mr. Frank W. Edwards, P. E., General Manager of the Centennial, and now serving as president of the Chicago Chapter, Illinois SPE, NSPE, reports that more than 50 societies are now participating in the Convocation. Each will have a meeting of its own. Many of the meetings are full scale national meetings which normally are held throughout the country. This year they are concentrated in the eleven-day period, so that the engineer who visits Chicago will have the opportunity to attend sessions on almost every conceivable technical and professional subject of interest to him. Major Lenox R. Lohr, president of the Centennial Corporation, has described the convocation as a cafeteria of engineering subjects, where the individual member of the profession can pick and choose from the enormous array of papers presented by outstanding world authorities.

In addition to the normal meetings of individual societies, a special feature of the Convocation will be symposia on the general subjects of food, tools, structures and construction, transportation, mineral industries, chemical industries, communications, energy, health, education and training and professional societies.

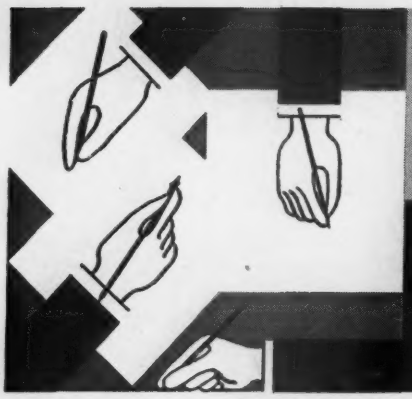
These symposia, although technical in nature, will be presented in general terms so as to be understandable by those who are not experts in the specific fields. The comments of a well qualified individual outside the specific engineering field will be presented in each symposium. For example, the well known writer Paul de Kruif will close the symposium on health. These meetings, therefore, will be of interest both to engineers and the general public.

Other features of the Convocation include International Day, when a reception will be held for foreign delegates, and Centennial Day when luncheons and banquets will honor outstanding engineers.

Corollary features supporting the main activities at Chicago include: feature magazine articles, a motion picture for distribution to groups throughout the nation, radio and television programs, and a commemorative postage stamp.

Frank W. Edwards, General Manager, Centennial of Engineering, 1952, Inc.

Lenox R. Lohr, President, Centennial of Engineering, 1952, Inc.



Professional POSTSCRIPTS

This is your department. Your contributions to it are solicited. We want your views on subjects that affect the engineering profession directly or indirectly. Please keep your contributions short, and remember that editing may be necessary to conserve space. Your name may be omitted if you desire. — *The Editor.*

Next to the shortage, few articles about the profession seem to have the lasting appeal of personality pieces. We have had several excellent ones submitted to PP, and we are happy to print the following by

Engineer Roland N. Barton, P. E., of the Cleveland Chapter, Ohio SPE.

All right, Engineer Barton, let's have your story.

—PP—

Mr. Harold Kaiser deserves thanks for his letter in the PP column of the May, 1952 issue of AMERICAN ENGINEER. He takes a real step towards lifting the engineers out of the introvert classification into which they have put themselves. Possibly I am exaggerating but it seems to me we haven't done justice to ourselves. Too frequently we read articles written by engineers and published in our engineering magazines, which in effect state that engineers are shy, retiring, unobtrusive, backward, etc. Modesty is an admirable virtue, and perhaps it is the presence of this quality in engineers which is sought to be proved. But the general impression I gain is rather that we engineers are simply lacking in social graces and personality—in short, we are introverts. Yes, we have all read, more than once, articles in which we actually refer to ourselves as introverts.

Are we suffering from a class inferiority complex?. I can't believe that is the case; we realize that engineers and their works are important, though many will agree that the public takes pretty much for granted the benefits resulting from the engineers' special knowledge. Read publications of the Bar Associations or any other professional group. Such articles are rare if not altogether absent. These men accept themselves as meeting the usual social standards, and certainly they do. It is inconceivable that so large a category as engineers should, as a group, fall below these standards. Nor does the nature of the education or work particularly attract those who are sufferers of introversion. Some articles state that we are uncultured, but if such is the case, it is being corrected by the tendency of colleges to give more subjects of a general nature. My experience is that the average engineer can hold his own in any company or any conversation. Engineers are normal people but engineers seem to be the only ones who do not realize it. We are our only critics.

If there is something wrong, it isn't the mass of individuals but the system, and the necessary corrective measures should be taken. NSPE has already done a fine job in their EIT program, Executive Research project, legislative work, and in many other ways, and in connection with such work frank discussion of our shortcomings is necessary. But I honestly feel we must stop referring to ourselves as uncultured or introverted. It is tiresome, incorrect, unfair and misleading. And what's worse, someone is liable to start believing it.

I may be hanging too far overboard, but I would surely like to know whether or not I stand alone in my opinions.

—PP—

Do you have any opinions on personality and allied subjects? Why not let us know what you think?

—PP—

In the January issue of the *American Engineer* we presented a pro and con debate story on the Missouri Valley Authority. Senator Harry P. Cain of Washington wrote against the MVA, while Senator Paul H. Douglas of Illinois, was in favor of the program. The piece stirred up much interest among our readers, and our mail bags have been filled with many comments. Because we believe professionals should form *some* opinion on such matters, we are happy to print two of the letters received here. First, let's hear from

Engineer Lewis Braverman, P. E., of New York City

—PP—

Your excellent tabular layout of the "pros" and "cons" of the Missouri Valley Authority in the January issue of the AMERICAN ENGINEER deserves high commendation.

It not only brought out the merits and demerits of the project as presented by the Senators, but reading between the lines, one is amazed at the mediocre and myopic thinking of the opposition to this most prodigious project.

Senator Paul H. Douglas' presentation is factual, logical, and humane. It is a delineation of the facts as well as the economics of the project.

On the other hand Senator Harry P. Cain's discussion suggests that he has never seen the horrible pictures you so carefully published showing the terrible erosion of the valuable top soil. He does not even give any sympathetic consideration to the loss of property and the destruction of the homes, and the means of livelihood of the innocent victims estimated at more than a billion dollars. In addition he seems to forget, that the forces of nature routed the Missouri River and that Man delineated the boundaries of the ten states along its route. His arguments are indeed facetious. He notes the following:

1. *No one has yet estimated the cost;*— but in the same breath he says it will cost tens of billions of dollars.

2. *The project is inflationary.* If that is so, then Boulder Dam, Grand Coulee Dam, T.V.A., and ever so many other major Engineering works that put the forces of Nature to work for the benefit of man were also inflationary;—which however have been proven to be otherwise.

The saving of the valuable top soil as a water sponge, and its use for fertile farming, the elimination of dust storms, the electrification of the homes of the once poor farmers, the general prosperity of the areas, the production of cheap electric power for atomic energy, and aluminum production, all testify to its material worth in general, and the aid to the defense of the nation in time of need. The projects have in the long pull, more than offset any of the potentialities of inflation.

3. *Shortage of materials.* The project can be built of as much material as is now available, such as reinforced concrete and other materials not in short supply. The use of scarce materials can be postponed until they can be spared by the defense effort.

4. *Objection to this type of government agency:* A project such as M.V.A. can be controlled more efficiently by *one* instead of *ten* authorities of the individual states. Mr. Cain says he is a "realist." He must be real enough to recognize that no private enterprise can exist unless there is centralized responsibility. The argument for "States rights" is being carried to "ad nauseam." The water flowing down the Missouri River will not take orders from Missouri, Iowa, or Nebraska, but rather from the immutable law of gravitation which does not change at the artificial state boundary.

5. *Pick-Sloan Control* — This system is just a "hodge-podge" and not an Engineering Project.

6. *Removal of land from State to Federal control.* This argument is too ludicrous for comment.

7. *M.V.A. would condemn only land from those it did not like and improve and sell to those it did like.* This is a sad commentary on the immoral way of thinking, and the lack of trust in the average American, that is now going the rounds in official Washington today.

8. *M.V.A. has no Engineering Plan.* How can M.V.A. have any plans until it hires the necessary Engineering staff to produce same?

9. *Danger from regional authorities like*

M.V.A. This danger is only in Mr. Cain's imagination. Look at the record of those now in successful operation. There certainly must be enough legal talent in the Congress to so incorporate and appoint high principled officials who will operate the system for the benefit of the American people. If the politicians will keep their "pork barrels" out of the project, the administration of M.V.A. will be eminently successful.

It is indeed a public service that our magazine has given this subject such enlightened discussion, for the benefit of the lay public as well as the Engineering Profession.

—PP—

Next, still talking about the MVA,
Engineer Henry D. Hammond, P. E., of New York City

—PP—

You have done your part most nobly in presenting side by side the views of Senators Douglas, pro, and Cain against, an M.V.A.

But the sad fact that our engineering public has not, in the past received the broad, factual educational basis that would enable an engineer to judge such discussions is liable to rob your noble effort of much of its effect.

Let us take the subject of geology, not stressed and often not even required in most elementary doses for an engineering degree, and for admission to our Society.

It has the most vital bearing on the questions being kicked around by these two Senators of any department of science, and all our past attempts to utilize the flood plain, and the drainage basin, of the Mississippi have completely ignored it. Today, the sad fact that our soil in North America is near half gone and rapidly pursuing the vanished Red Man, until it is a matter for intensive research by qualified scientists right now if immediately succeeding generations can even hope to be adequately fed, lends piquancy to the soil losses, pointed out by these Senators, via Mississippi floods. But, not being geologists, nor having the wit to consult any, neither of them has the vaguest idea of what must be done. Neither, until after the last war, had our Army Engineers who have poured so many hundred millions of tax funds down that drain after and on top of the untold billions in value of farming soil they have needlessly wafted into the Gulf via their crazy levee systems.

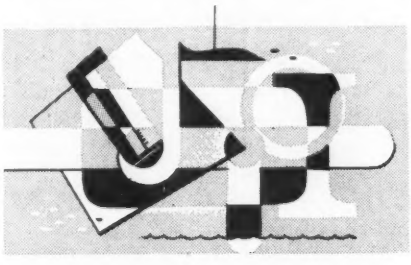
Not only is our soil-producing territory in the Rockies (not to mention the Appalachians) near gone now, thanks to the devoted efforts of those of Senator Cain's ideology, whose thesis is "Let us at these Federal lands" so our people can exploit them NOW for the last obtainable dollar in timber, sheep and cattle, and the politicians can have fatter and richer machines in consequence, and hang the next generation! But in addition, our reclaimers and irrigators and power developers have ignored this condition, and in order to put supporters in business, to start immediate taxable earnings, have hired the engineer to plaster the West, and much of the East as well, with dams, basins, lakes, power plants and what-not which for the most part must inevitably cease to function within what is, historically speaking, hardly a moment—because of silting, as a result of being built on sites whose headwaters drain denuded and unprotected slopes. Slopes in turn, exploited and ruined by our Cains.

If we are to survive as a great people, we must stop this sort of nonsense instanter.

Both Senator Cain and Senator Douglas must be voted right—correct—to be backed 100 per cent—ABOUT STOPPING THE OTHER!

Not that we do not immediately require the project for reforesting and saving denuded headquarters in the Missouri basin. Nor that we do not immediately require an M.V.A. But that we MUST confine our immediate-future expenditures to saving soil, restoring soil-producing territory and MAKING SCIENTIFIC studies—not just engineering studies—of HOW to save the Mississippi flood plain, and of what our food and power requirements will be over the next century and a half, and of laying out NOW power and irrigation projects to meet them. And, of course, instantly discontinuing ALL power and irrigation development aimed at getting political support, or at enriching mere groups and sections of just this generation.

When a great river travels a thousand miles on very low gradient, as does the Mississippi, even beginners at geology know, and have known for a hundred years now, that in flood its soil-saturated waters spread as far as terrain will allow. Toward the edges of this spread, the current slackens and the valuable, food-growing fines, enriched with centuries of work-over by the plant and animal kingdoms, settle out along the margins of the valley, never getting so far, for the most part, as to pass the



delta zone and be lost at sea. The coarser suspended matter on the other hand, will settle right in the main current, in the case of coarse sand even building bars in 10-mile currents. Naturally, the channel rises under this regime, and the river always runs at a higher elevation than its flood plain. It is this tendency that causes such a river to meander — and there is no other cause for it. It is this trend that causes old Missouri to eat out 80 acres at a bite (actually much larger bites are taken).

But can we stop it? Rather, do we dare try? Our Army engineers, rushing in where angels (and geologists) knew better than to tread, said Oh, Yes! and rued the day. Shortly after the war, those who were still in charge of this ill-fated folly admitted, privately, that they knew they were licked, and the only engineering hope of containing flood damage was to ring-levee the property (houses, barns, stock pens, etc.) and let the river alone. But, they wailed in discussing the problem in our leading technical publications, they were being licked to a standstill on it by the public in the flood plain, which they themselves had "educated" (God save the mark!) to demand levees!

Yet to continue shooting the entire contents of the Mississippi into the gulf at high velocity, *including* the irreplaceable fines and soils that alone stand between salvation and waking up by perhaps 1980 to discover the Mississippi flood plain another Tigris-Euphrates valley-desert, is no longer to be tolerated. Look, the Summerians and their successors had no means of leveeing *their* rivers! They just wasted the soil, and destroyed the cover. Had they been able to levee them as well, the place would have lasted only decades, instead of several thousand years, as it did.

The Nile, on the other hand, has for some four thousand years, at least, been handled on a conservation-correct plan, and the fertility of its basin is not yet even in question, though man has denuded all the territory for a thousand miles each way east and west of it by his short-sightedness. The Egyptian, not having the knowledge or means to ring-levee, or to construct islands for stock, people, houses and equipment, simply established all permanent works on the banks, which were much closer together than in our case, and entered the flood plain ONLY at times of low river, to which all farming was, and still is, confined. As man has been unable to strip the cover from the headwaters of this great river, protected as they have been until the last few decades by unfavorable climates and inaccessibility, the Nile still supports civilization's one and only example of a self-renewing bread-basket.

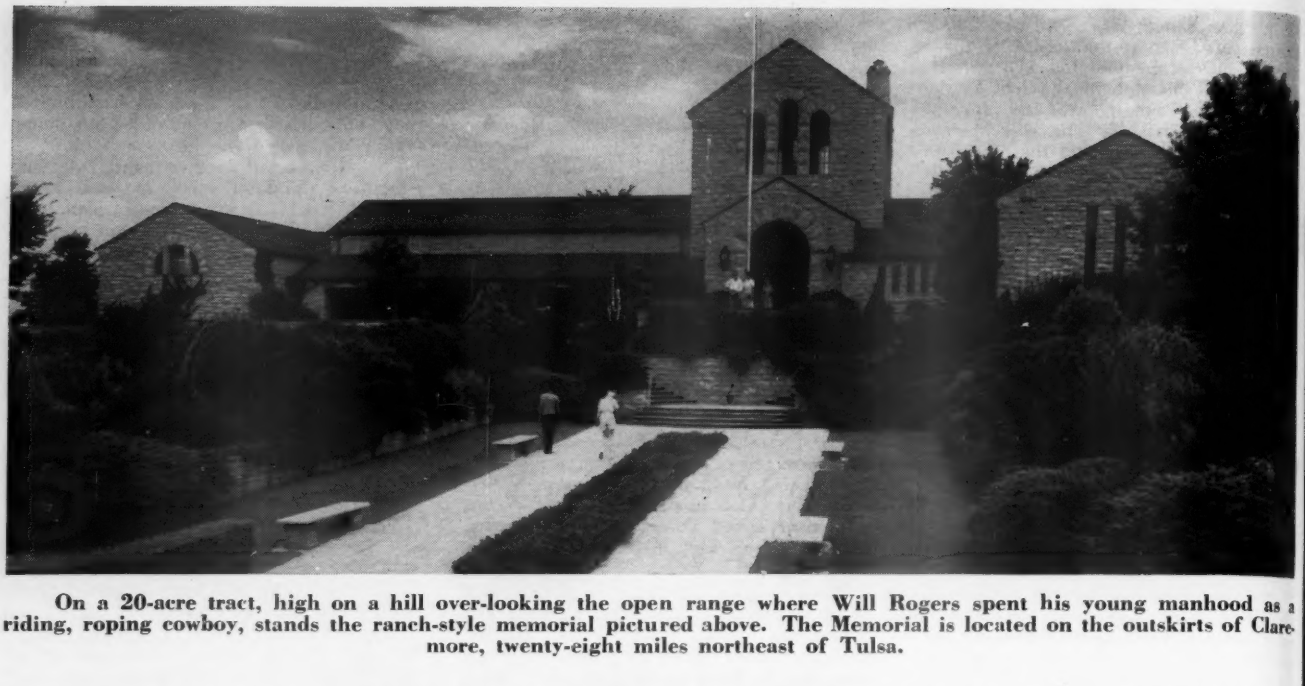
Let us have an M.V.A., as Senator Douglas says. But, as Senator Cain says, let us make certain it does not jump in spending cash, pushing little people around, playing political favorites, and implementing fabulous, useless and vicious schemes without proper planning. Let us make sure it can't expend anything, at least until the present world-threat of war and upheaval is fully insured against. Except that is, for restoration of cover and soil-making capacity in all the headwaters of the great dual river system, and that whether local cattlemen, sheep-grazers and lumber-jacks like it or not. It MUST be done. Then, let it marshall our scientists and engineers for a study of future U. S. agricultural and mechanical production requirements over *at least* the next ten decades. When a possible picture has been produced, including necessary rates of fresh soil-delivery to *feed* to population envisaged, then and only then, turn the engineers loose planning the timber-planting, irrigation and power-producing rates and requirements to reach the expected needs for production. Only after this is a state of reasonable certitude can we safely start to design even the next super-dam!

That will most properly take care of Senator Cain's bogey of extravagant waste, and likewise of Senator Douglas' equally real and dangerous bogey of non-cooperation, demand of everything for the local clique (as confirmed by Cain) and impossibility of evolving any useful solution for the whole country. And by all means let's kill that Pick-Sloan idiocy, and every single project under it, immediately, and not allow one of them to be revived until after at least ten years' study. Included in this moratorium on more construction as a MUST is ALL levee work. It simply will not work, and there is no use kidding the public on it any more. We have got to where we MUST cut our losses, and get back to common sense.

—PP—

That's all for now but we'll be back here next month with more letters, short articles, etc., from your professional brothers. Why not let us hear from you? What you *think* may be of interest to others.

—The Editors.



On a 20-acre tract, high on a hill over-looking the open range where Will Rogers spent his young manhood as a riding, roping cowboy, stands the ranch-style memorial pictured above. The Memorial is located on the outskirts of Claremore, twenty-eight miles northeast of Tulsa.

THE ANNUAL MEETING IN BRIEF

Don't miss this year's annual meeting in Tulsa, June 5-7, where many of the nation's foremost engineers will gather to discuss professional problems, advance NSPE's programs, and have a mighty good time!

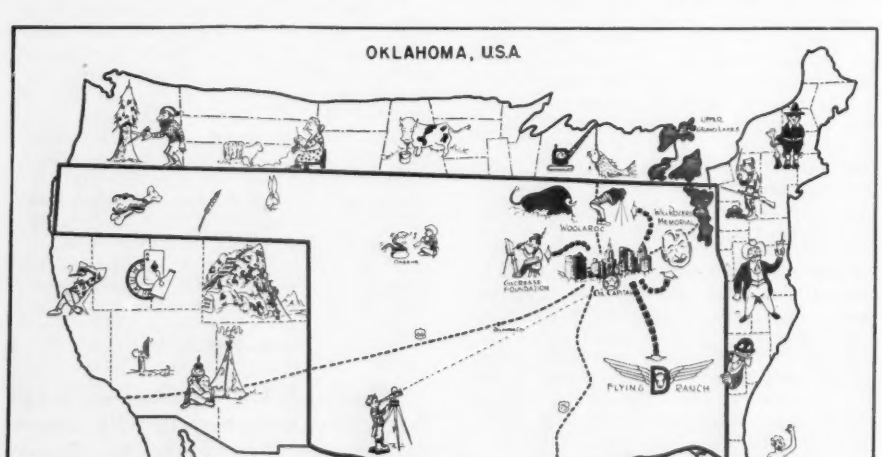
This year's annual meeting in Tulsa, "The Jewel of the Southwest," promises to be the best ever, with plenty of entertainment and relaxation interspersed between serious discussions of professional problems.

From the first meeting of the Executive Committee on June 4 to the last moment of the all-day barbecue on the famous "Flying D" ranch of President Larry Dresser on June 8, where all engineers attending the convention and their families are invited to be his guests, the conclave promises much of interest to all.

The meeting proper begins June 5 and ends June 7.

Many subjects of importance are on the agenda. For example, NSPE's expanding public relations program will come in for discussion and suggestions will be solicited from members and delegates attending. Plans for a bigger and better Engineers' Week next year will be laid. Relations between NSPE and other societies will be discussed. Budget and financial problems will be reviewed.

Work with Civil Defense, National Defense, Engineers-in-Training, Ethical Practices, Salary and Fee Schedules, a Creed for Engineers, and the role of the engineer in National Defense and in his community are just a few of the items up for discussion.



Not Surveyed by Professional Engineers

Scale of Hospitality: Unlimited.

A Message From President Dresser

The limited finances of the NSPE allows us to have only two Board of Directors' meetings each year. This year's first conference will be at the Annual Meeting in Tulsa. These meetings are of the greatest importance, not only to the 100-odd Directors—your representatives—who attend, but to *every* member.

Many of the 27,000 NSPE members cannot go to these meetings, but every member can and should learn about what goes on at them. The next issue of the American Engineer will report the Board's actions in detail. This report is your "ring-side seat." Make certain you use it.

With Our Members . . .

Succeeds Molineaux

New York Society Has Annual Meeting; Edward J. Nunan Elected President

The New York Society, holding its annual meeting recently at the Hotel New Yorker in New York City, elected Edward J. Nunan of Buffalo as its President for 1952-53. Mr. Nunan takes office June 1, succeeding retiring President Charles B. Molineaux, who becomes a member of the New York Society's Board of Trustees.

Carl M. Gilt, P.E., of Brooklyn, was elected First Vice President; Thomas M. Linville, P.E., of Schenectady, Second Vice President; Ernest F. Fox, P.E. and Patrick M. Corry, P.E., were re-elected as Financial Secretary and Treasurer, respectively. New Zone Directors are Vincent G. Terenzio, P.E., of Pleasantville; Clayton A. Miller, P.E. (re-elected) of Schenectady; and John M. Lewis, P.E., of Albany.

Mr. Nunan is Materials Engineer and Sales Manager for New York State of the Buffalo Slag Co. and affiliated companies, the largest producer of highway materials in Western New York.

At its meeting the Society held a symposium on the engineering shortage. Many diverse points of view were presented in a panel discussion moderated by Dr. Walter J. Murphy, Editor, *Chemical Engineering News.*

N. Y. President-Elect

Edward J. Nunan (above) was elected President of the New York Society of Professional Engineers at its annual meeting in New York recently.

Mr. Nunan, a native of Buffalo, N. Y., is associated with the Buffalo Slag Co. He is a past President of the Erie County Chapter of the New York Society and is a member of the American Society of Civil Engineers, the American Concrete Institute, executive vice-president of the Erie County Planning Association, and is a former President of the Technical Societies Council of the Niagara Frontier.

Erie Chapter Wins N. Y. Membership Contest

At the New York Society convention it was announced that Erie Chapter had won the President's Gavel contest for the best increase in membership for the second straight year. Erie Chapter gained 42 new members during the year and had losses amounting to only five for a net increase of 37. Rockland Chapter was second and Niagara Chapter was third.

Other members of the panel included: Dr. Jess H. Davis, President, Stevens Institute of Technology; Dr. Otto Klitgord, Director, New York State Institute of Applied Arts and Sciences, Brooklyn; T. A. Marshall, Jr., Executive Secretary, Engineering Manpower Commission of Engineer Joint Council; C. T. Foss, Vice President-Engineering, Arma Corporation, Brooklyn and Mineola, N. Y.; F. D. Leamer, Personnel Director, Bell Telephone Laboratories.

A luncheon preceding the Forum, held in the New Yorker's Grand Ballroom, attracted over 500 persons to hear an address by Mayor Vincent Impellitteri and a talk on New York City water problems by Commissioner I. V. Huie. Toastmaster for the occasion was Dr. Frederick H. Zurmuhlen, Commissioner of Public Works, City of New York.

Other subjects engaging attention at the Convention included "Atomic Energy for Peace," a talk by Dr. T. Keith Glennan, Member Atomic Energy Commission, and a talk by Dr. John R. Dunning, Dean of Columbia School of Engineering. A conference on "Civic Affairs" and an industries exhibit were two other popular highlights of the convention.

National Director McKee of New Jersey Named County Engineer

Engineer Leo H. McKee, New Jersey's National Director, has been appointed to a three-year term as County Engineer of Monmouth County, it was recently announced.

Licensed by the state in 1923 as highway engineer and land surveyor, Mr. McKee was later licensed in October, 1938, as professional engineer. He has served for 20 years as secretary of the Monmouth and Ocean County Society of Professional Engineers; a director for 12 years of the New Jersey Society of Professional Engineers and is in his sixth year as a director of the National Society of Professional Engineers.

New Jersey Names C. George Krueger 'Engineer of Year'

The New Jersey Engineer reports that C. George Krueger, P.E., has been named "Engineer of the Year." Mr. Krueger is Deputy Director in Charge of Engineering and Safety for the New Jersey Department of Labor and Industry. He has served on many committees having to do with the technical development of safety codes and safe practices.

Arkansas Society Reports Formation Of Ladies Auxiliary

R. J. Rhinehart, P.E., National Director from Arkansas, reports that a state-wide ladies' auxiliary has been formed there. Officers elected are: Mrs. Fred McDonald, Little Rock, President; Mrs. R. J. Rhinehart, Pine Bluff, 1st Vice President; Mrs. F. M. Methvin, El Dorado, 2d Vice President; Mrs. Fred Herring, Little Rock, 3d Vice President. Board Members are: Mrs. G. F. Branigan, Fayetteville; Mrs. B. F. Beckman, Fort Smith; Mrs. F. A. Gerig, Arkadelphia; Mrs. Glenn Kellogg, Little Rock, and Mrs. Luther Bearden, Batesville.

"DID YOU KNOW that thru the efforts of NSPE in Washington, Professional Engineers were classed with the other professions in the latest Social Security law. This means that every self-employed Professional Engineer saves $82 a year. (Our total annual dues of $17 is less than 25% of this amount.)" . . . *East Bay Chapter (California) Bulletin.*

Better Salaries The Answer He Says

Coleman Urges Public Bodies Pay More Money To Engineers To Fight Shortage

NSPE President-elect John D. Coleman of Dayton, Ohio, recently visited the South Piedmont Chapter of the North Carolina Society in Charlotte, where he spoke of the shortage of engineers facing the nation.

Mr. Coleman said public bodies should employ engineers at salaries sufficient to encourage competent ones to stay in the field of public works, explaining that the average public works organization as now operated cannot compete with industry for the promising young graduates who could be trained for careers in this phase of the profession.

The National Society of Professional Engineers, he said, should encourage the use of engineering talents to the utmost in civil works and the armed services because of the shortage. The draft boards, he declared, have been promiscuously drafting young engineering students while granting deferments to those studying medicine and law.

He told of efforts to co-ordinate activities of various technical societies in the general effort to promote the interests of the profession and to encourage worthy and deserving high school students to become engineers.

He was introduced by Prof. Robert B. Rice of N. C. State College, past president of the North Carolina organization. M. E. Beatty, South Piedmont Chapter president, presided.

Texas Lawyer Discusses Contracts, Specifications At Galveston Meeting

At its last meeting, members of Galveston Chapter of the Texas Society heard William Dazey, President of the Galveston Bar Association, talk on "Contracts and Specifications," a subject of particular interest to engineers.

Counsels Youngsters

Engineer Harry F. Zimmerman, a member of the Board of Directors of the Augusta, Georgia, Chapter, counsels two prospective young engineers, Bev Hite and Bobby Inglett, at "Career Week" at Taubman Junior High School. Mr. Zimmerman undertook the volunteer job of acquainting youngsters with the facts of life about a career in engineering. Representatives of other professions informed interested youths about work in their fields.

Franklin County Chapter Holds Dinner Dance

The Franklin County Chapter of the Ohio Society recently held a smorgasbord dinner, a style show for the ladies, and a dance at the Ft. Hayes Army-Navy Officers' Post in Columbus.

West Speaks About Engineer's Status To Pittsburgh Members

The Pittsburgh Chapter recently held a joint meeting with the local section of the AIEE. Principal speaker was Pennsylvania Society Secretary John T. West, who spoke on "The Engineer and His Professional Status." Mr. West discussed the history of the registration law, the duties and problems encountered in its enforcement, and the composition and functions of the state registration board.

Gerald Irvin Feted By Southern Arizona Chapter, April 25

Gerald W. Irvin, recently retired president of the Southern Arizona Chapter of the Arizona Society of Professional Engineers, was honored April 25, at the Annual past-presidents' dinner, held in the main dining room of the San Carlos Restaurant. Engineer Irvin, mining engineer for the Eagle-Picher Mining & Smelting Company, Sahuarita, Arizona, was presented with a special emblem of the Society with his name and the date of his presidency engraved on it.

Special guests were Engineer Dario Travaini, of Phoenix, newly-elected president of the Arizona Society of Professional Engineers, and Engineer James E. Hastain, of Phoenix, newly-elected president of the Central Arizona Chapter of the Society, and members of the Senior Class, College of Engineering, University of Arizona.

Colorado Society Urges Engineers To Exercise Ballot

The Legislative Committee of the Colorado Society is making a drive urging all members to register to be able to vote in the Presidential election. "We feel that the Professional Engineers of Colorado represent an intelligent cross section of the voting public, who, regardless of party affiliation, should make themselves heard," the Committee declared.

Tulsa Hits On Good Method Of Gaining New Chapter Members

The Tulsa Chapter has been conducting a very successful membership drive by awarding an attractive lapel pin to engineers who bring in three new members. Ten members have already qualified for the pin and several more need only one more new member to do so, Engineer LeRoy T. Bossard reports.

Coal Mine Problems Described Before Johnstown Chapter

The Johnstown Chapter of the Pennsylvania Society heard Robert T. Laing, Executive Director of the Central Pennsylvania Coal Producers' Association, speak on "Present Day Coal Mining Problems" at its recent meeting.

Westmoreland County Chapter Organized By Pittsburgh Leaders

H. A. Reynolds, President of Westmoreland County Section of the American Society of Mechanical Engineers, recently invited the Professional Engineers of Westmoreland County to an ASME meeting. John T. West, Jr., PE., Secretary of the Pennsylvania Soicety of Professional Engineers and Prof. R. Gorham, PE., of the University of Pittsburgh, Member of Pennsylvania State Registration Board for Professional Engineers and member of the Pittsburgh Chapter, PSPE, spoke on the "Professional Engineers Registration Act" and on the Pennsylvania Society of Professional Engineers and its activities. The meeting followed a dinner at the Mountain View Hotel in Greensburg, Pa.

So much enthusiasm was generated that thirty registered, professional engineers decided to take the necessary steps to form a Westmoreland County Chapter.

Peter P. Lombardo, PE, Plant Engineer of the American Locomotive Company's plant at Latrobe, Pa., was elected Temporary Chairman. Frank G. Sciullo, PE, City Engineer of Monessen, Pa., was elected temporary Secretary-Treasurer.

Westmoreland County is one of the five counties comprising the Pittsburgh Chapter Area. The Chapter has only nine members at the present time residing in the County but more than 500 Registered Professional Engineers staff the more than 40 industries in the county employing engineers.

Detroit Official Speaks

Michigan Society Active In Developing Up-To-Date Building Codes For State

The Building Code Committee of the Michigan Society of Professional Engineers has been active for the last three years—endeavoring to promulgate a uniform, up-to-date, performance type code for individual communities and for the State of Michigan.

To better acquaint engineers with problems of accomplishing a satisfactory building code, the committee had Joseph P. Wolff, Commissioner of the Department of Buildings and Safety Engineering of the City of Detroit, speak before the Detroit Chapter of MSPE on "The Forthcoming Building Code for the City of Detroit."

Mr. Wolff has been Commissioner for the last 22 years and is also the President of the Building Officials Conference of America.

He stressed the advisability of the following principles in the adoption of a building code:

a. Uniformity—State and National

b. Adherence to the "performance" type requirements—allowing the use of any material or methods which meet the minimum standards of performance.

c. Provisions for a periodic review of the Building Code to keep it up to date.

In order to attain the above ends, Mr. Wolff suggested that states pass legislation to permit adoption of nationally recognized building codes and standards by reference.

The nationally recognized building codes are:

1. National Board of Fire Underwriters.
2. Pacific Coast Building Officials Conference.
3. Southern Building Code Congress.
4. Building Officials Conference of America, Inc.

Golden State Leader

George E. Zelhart, (above), has been recently elected President of the California Society. Other officers named include: L. M. Osborn, First Vice President; Paul V. Birmingham, Second Vice President; Fred M. Johnson, Third Vice President; E. C. Glover, Treasurer; and Clyde N. Bradley, Executive Secretary.

Mr. Zelhart was born in Missouri but emigrated to California in 1910. He was educated at Fresno Junior College and Stanford University. In 1926, he was employed by the San Joaquin Light and Power Corporation which was later consolidated with the Pacific Gas and Electric Company. In 1942, he joined the Army Corps of Engineers and was separated with the rank of Major in 1946.

Miami, Ohio Nominees For 1952-53 Headed By Russell Barnard

The following have been nominated for offices of the Miami, Ohio, Chapter:

Russell Barnard, President; J. Howard Stalker, 1st Vice President; Frank Conner, 2nd Vice President; Peter Kalmus, Treasurer; Max Bursk, Secretary; Robert Heyer, Victor Simpson, Edward Brown and J. S. Paxton, Directors.

O'Connell Nominated For Bronx Presidency

The following engineers have been nominated for office by the Nominating Committee of the Bronx Chapter:

President: Daniel J. O'Connell; 1st Vice President: Otto Mald; 2nd Vice President: Henry G. Vermont; Secretary: Clarence J. Girard; Treasurer: Harrison Blankstein; Historian: Ernest F. Fox; Directors: Edward T. Crinnion, Daniel J. Houlihan, George J. Kaye.

Held At Peoria

Illinois Holds 67th Annual Meeting; Business, Talks, Fun, Fill Busy Sessions

The Illinois Society celebrated its 67th birthday at its Annual Meeting in Peoria, April 3, 4, and 5.

The Board of Direction met in executive session at 10:00 A.M. April 3 to receive and review the twenty-two annual committee reports. Then a talk by C. Hobart Engle, Director of the Department of Registration and Education, State of Illinois followed. In the discussion after Mr. Engle's talk, several points concerning the relationship between the Illinois Society and the Department of Registration and Education were clarified.

An inspection trip to the Pabst Brewing Company on Thursday evening provided both instruction and entertainment for some 125 engineers. Rob Roy, Chairman of the Society's Publicity Committee, was the capable master of ceremonies.

Technicolor sound movies of the last Rose Bowl Parade opened the 67th Annual Business Meeting. President-elect A. D. Spicer and Vice President R. G. Brichler were presented to the meeting. Committee chairmen read their annual reports and discussed committee work. Two bids for the 68th Annual Meeting were made and the invitation of the West Central Chapter was accepted. The next meeting will be held at Moline-Rock Island.

President Gunlock M.C'd the Annual Luncheon introducing the incoming officers and guests. A welcome to the City of Peoria was given by Duane Stone, City Attorney, on behalf of Mayor Malone who could not be present because of illness.

Paul Robbins, Executive Director of NSPE, gave greetings from the National Society of Professional Engineers. W. B. Walraven, in a short talk recounting Clarence W. Klassen's many accomplishments, presented him to President Gunlock who conferred the annual Illinois Award on Mr. Klassen. Dean Russell E. Gibbs, Peoriarea Chapter, who heads Bradley University College of Engineering, introduced NSPE President L. L. Dresser. Mr. Dresser discussed the relationship of the engineer to society.

At the reassembled Business Meeting, George DeMent led a panel discussion on Fees and Salaries. He had the able assistance of John R. Gardner, L. K. Crawford, H. A. Pollack and James Scott, members of the panel. The afternoon session adjourned at 5:20 P.M.

Broome Chapter Hears Dr. A. B. DuMont Speak On Color Television

Dr. Allen B. DuMont, President of the DuMont Laboratories and the DuMont television network, recently addressed the Broome Area Chapter of the New York Society on "Color Television."

Illinois Society Meets

Left to right: Dean Russell E. Gibbs, Bradley University, Peoriarea Chapter, Clarence W. Klassen, Capital Chapter, who received the 1951 Illinois Award, W. B. Walraven, Capital Chapter, Chairman of the Illinois Award Committee, and Dwain Wallace, President, Peoriarea Chapter.

New officers of the Illinois Society are: (left to right) H. E. Babbitt, Secretary; A. Douglas Spicer, President; W. A. Oliver, Editor of the Illinois Engineer; R. G. Brichler, Vice President; and P. E. Roberts, Assistant Secretary. *Construction Digest Photos.*

Gov. Lausche Appoints Hindman

Governor Frank J. Lausche recently announced the appointment of Thompson F. Hindman to the Ohio State Board of Registration for Professional Engineers and Surveyors. Mr. Hindman has been a member of the Cleveland Chapter and Ohio Society since 1942 and served as President of the Cleveland Chapter in 1948. Since then he has been a trustee for his local chapter and participated on various OSPE committees.

Seattle Chapter Probes Corporations Formed To Practice Engineering

William M. Valentine, P. E., Secretary-Treasurer of the Seattle Chapter of the Washington Society, reports the following items:

The controversy over corporations formed for the exclusive purpose of practicing engineering is being placed in the hands of Washington state officials.

The membership drive is starting to make progress with sixteen new members signed up.

William M. Valentine, Chapter Secretary, has turned over the duties of Executive Secretary to the Organizational Service Bureau, which has had extensive experience in this type of work.

Mr. Con Mannes reported having an interesting time at the State Presidents' Convention in Ohio. He came back with many inspiring thoughts.

Mr. Lindley R. Durkee, Chapter President, has not failed even once so far to provide a lively and interesting Chapter meeting. Guest speakers have been Prof. G. O. Eastwood; Charles F. Riddell, Attorney; W. C. Goodloe; Pres. L. L. Dresser; R. W. Finke, City Engineer; Prof. A. L. Miller.

B&W Vice President Discusses Value Of Engineering Societies

"The Value of Engineering Society Membership" was the topic of Mr. E. G. Bailey, Vice President of the Babcock and Wilcox Boiler Company, when he spoke before the Lehigh Valley Chapter of the Pennsylvania Society recently.

The Membership Committee, Bernie Blaisdell, Chairman, made a report which showed 34 regular, 1 surveyor, 2 transfers and 35 affiliate members gained during the last year.

R. M. Heintz Talks Before San Jose Chapter

Ralph M. Heintz, Sr., co-founder of the famous firm of Jack and Heintz of Cleveland, which has pioneered in the field of employee relations and in the design of specialized mechanical and electrical equipment, was the main speaker at a recent meeting of the San Jose Chapter of the California Society. Mr. Heintz, now retired and living in Los Gatos, California, spoke on "Bridging the Gap Between Engineering Education and Its Application."

Seek 900 For "Battle of Brains"

Tennessee Society Leads Crusade To Double State's Engineering Enrollment

The Tennessee Society did an excellent public relations job within the state during Engineers' Week, getting considerable publicity and alerting the Volunteer State to the key role the engineering profession plays in American life.

In addition, TSPE members stumped the state, pointing out that America needs more engineers if she is to stay ahead of the Kremlin in the all-important "Battle of Brains."

Governor Gordon Browning signed a proclamation designating Feb. 17-23 as Engineers' Week, and so did Mayors of several other towns in the state. Knoxville Chapter provided an interesting variation on the proclamation theme when it prepared the Mayor's proclamation on tracing paper and then had blue prints made of it. The blue prints were placed in store windows around the city.

Speeches to civic groups, before high schools, radio programs, newspaper articles, and spot announcements galore brought the attention of readers and listeners to the engineer and his work.

Considerable interest was generated in a drive spearheaded by the Tennessee Society to get 900 freshmen engineering students to enter the state's engineering schools next fall. Dean N. W. Dougherty, of the University of Tennessee Engineering School, put this succinctly when he toured the state telling groups that an increased engineering enrollment is necessary to "keep America ahead in the Battle of Brains."

If 900 students are secured, it would more than double the number now attending The University of Tennessee, Tennessee Polytech, and Vanderbilt University.

Dean Dougherty says the shortage of engineers started developing during the depression. Then World War II came along, and this was the only country that drafted its engineering and scientific students away from college.

"After the war, many people thought returning veterans would fill the depleted ranks of industrial and military engineers," Dean Dougherty said. "That started a disastrous stampede of younger students away from technical education." Overlooked was the fact that there was an increased industrial and military demand for trained engineers.

The saving feature, says Dean Dougherty, is that engineering colleges are in a position to train twice as many students as are now in school.

Wounded Officers, Back From Korea, At Colorado Meeting

Several wounded officers of the Korean War from Fitzsimons General Hospital were guests of the Colorado Society at its March meeting in Denver. Program Committee Member Wilbur F. Herbert reports that the officers had no "canned" address, but spoke extemporaneously, telling of their experiences. The first-hand view of the Korean situation proved extremely interesting.

C. G. Roush Heads Citizen's Committee In Kansas City, Mo.

C. G. Roush, Vice President of NSPE from the Central Area, and Chairman of NSPE's Public Relations Committee, has been appointed to the "Citizen's Municipal Services Committee" by the Mayor of Kansas City, Missouri.

Mr. Roush will head the subcommittee making an analysis of the Public Works Division. The special committee consists of 15 citizens who will review and make recommendations for improving the municipal services of the city. Mr. Roush is Manager of the Kansas City Division of the Westinghouse Electric Corporation.

Franklin County Chapter Organized In Pennsylvania

Engineer John T. West, Secretary of the Pennsylvania Society, reports that a new chapter has been organized in Franklin County, Pennsylvania. The following members have been elected temporary officers:

Bernard F. Smith, temporary Chairman; A. D. Keagy, temporary Secretary-Treasurer; C. Quinton Smith, temporary State Director. Bernard Smith, a Past President of the Lincoln Chapter, presided over the organizational meeting. Engineer Carl L. Kreidler of the PSPE Chapter Committee spoke on the aims and objectives of the Society.

Delaware Society Nominates Officers; Hears Dr. McClure

The Delaware Society recently reversed its practice and met in Dover instead of Wilmington recently to hear Dr. F. T. McClure, Director of the Research Center of the Applied Physics Laboratory, Johns Hopkins University, talk on "Guided Missiles."

The Nominating Committee presented the following names for candidates for office:

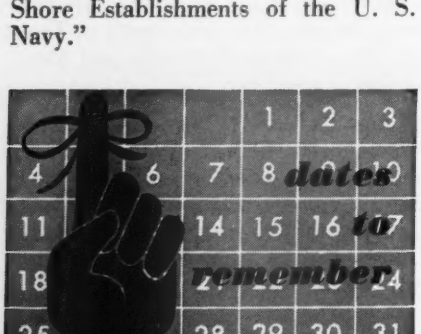
For President, Ernest S. VanDemark; for Senior Vice-President, Thomas B. Evans, Roy A. Garbett; for Vice-President, E. Powell Smith, Martin J. Bergen; for Secretary, Henry S. Mauk, Whitney R. Adams; for Treasurer, Ford H. McBerty, Edwin M. Schwyter; for National Director, William A. McWilliams; State Director, Walter B. McKendrick, Jr., Robert J. Barkley.

District of Columbia Society Nominates Officers For Year

The following have been nominated for office by the District of Columbia Society:

President, Paul S. Dell'Aria; 1st Vice President, Joseph Barnett; 2nd Vice President, Thomas M. Knight; Sec.-Treas., Michael F. Godfrey; Nat'l. Director, Joseph H. Powers; Society Directors, V. J. Richter and Frank L. Martin.

At the regular April meeting Engineer Leroy F. Deming discussed "The Emergency Power Plant Program for Shore Establishments of the U. S. Navy."



National Society of Professional Engineers—Annual Meeting, June 5, 6 and 7. Tulsa.

Georgia Society of Professional Engineers — 6th Annual Summer Outing. June 20 and 21. Radium Springs Hotel, Albany.

Convocation of the Centennial of Engineering—September 3-13. Hotel Sherman, Chicago, Illinois. **NSPE Meeting**—September 5.

National Council of State Boards of Engineering Examiners—Annual Meeting. September 4, 5, 6. Antlers Hotel, Colorado Springs, Colorado.

Cleveland Chapter Hears "Curbstone" Views Of France, Germany

Members of the Cleveland Chapter heard C. Merrill Barber discuss "Curbstone Views of Germany and France in 1952." Mr. Barber recently returned from a business trip in those countries.

Public Relations Counsel Addresses New York Chapter

At the June meeting of the Kings County Chapter of the New York Society, Harold Burson, well known authority on public relations, will speak on "Publicity Primer for Engineers."

New Tennessee Officers

Tennessee's new officers face the cameraman. They are, front row, left to right: Lorin Allen, Memphis, the new President; John Brough, Memphis, State Director; W. F. Moehlman, Knoxville, State Director; Frank Harder, Memphis, Secretary; Paul Farrell, Nashville, the retiring President; and Warner Howe, Memphis, Alternate National Director.

Back row, left to right: H. M. Brock, Clinton, State Director; A. T. Granger, Knoxville, State Director; Owen Hammer, Chattanooga, State Director; Al Stone, Chattanooga, 1st Vice President; K. B. Stallings, Nashville, Treasurer; Carter Crymble, Kingsport, 2d Vice President; N. W. Dougherty, Knoxville, National Director; and D. W. Mattson, Cookesville, State Director.

Not in the picture are: Lewis A. Schmidt, jr., Chattanooga, State Director; Warren A. Coolidge, Nashville, State Director; and Griffith Burr, Memphis, State Director.

Reed Nominated For Valley Forge Presidency For 1952-53

The Valley Forge Chapter of the Pennsylvania Society has elected the following officers for 1952-53:

President, Herbert L. Reed; Vice President, L. M. G. Dangremond; Executive Secretary, Abraham W. Martin; Recording Secretary, Walter A. Cubberly; Treasurer, Edward A. Seiz.

San Jacinto Chapter Hears All Sides Talk On '52 Political Issues

A great deal of interest was recently created by the San Jacinto Chapter of the Texas Society when it held a preview of the 1952 elections. Spurgeon E. Bell, attorney, Harris County Campaign Manager for Governor Allan Shivers, spoke for the Democrats. H. J. Porter, oil operator, State Chairman of the Texas Committee for General Eisenhower, spoke for the Republicans, and Dr. D. J. Martin, V. P. in charge of Engineering, Hughes Tool Company, spoke for the engineers. The meeting was held on the University of Houston campus.

State Senator Talks On Legal Aspects Of Engineering

State Senator A. L. McCawley, attorney for the Missouri Board of Engineering Registration, addressed the Western Chapter of the Missouri Society recently.

Mr. McCawley discussed the problems of interstate registration by comity, the EIT programs throughout the nation, the advantages and disadvantages of corporate or partnership practice of professional engineers and inter-professional relations of the engineer and the architect as defined under the state registration law.

Roses Nominated For Presidency Of Albany Chapter

The following have been nominated for office by the Albany Chapter of the New York State Society: for President, Maurice J. Roses; for Vice President, Edwin W. Sanford, Jr.; for Secretary and Treasurer, George W. Turnes, Jr.; for Directors, Russell E. Taylor and Russell A. Wylie.

Registered Engineers Listed

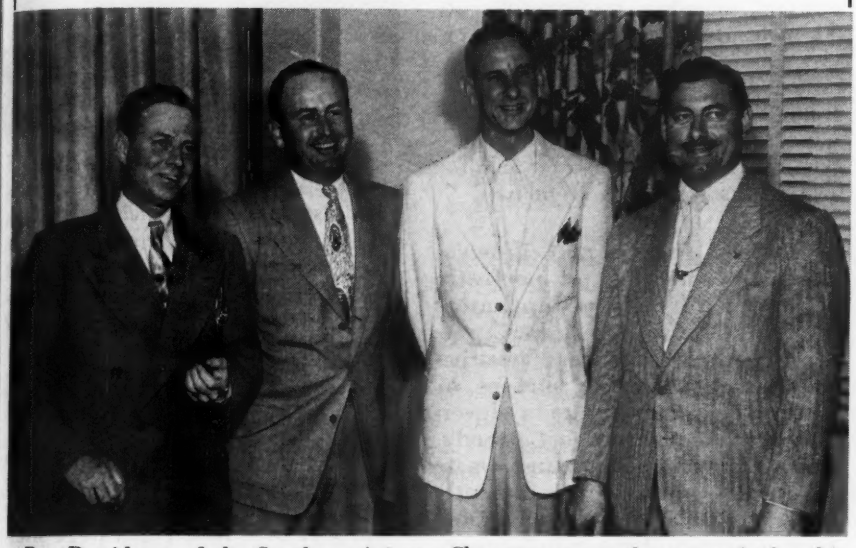
Pittsburgh Chapter Wins Five Year Battle Over Yellow Book Advertising

The Pittsburgh Chapter recently heard Dr. Charles F. Peck, of Carnegie Institute of Technology, speak on "The Ethical Use by Professional Engineers of Telephone Directory Advertisements."

Members adopted a resolution to accept an offer by the Pennsylvania Bell Telephone Company to provide a special classification in the "Yellow Pages," for the listing of "Engineers—Registered Professional."

This classification will be headed with the explanation: "It is unlawful for any person to engage or offer to engage in the practice of engineering unless he is licensed as a Professional Engineer and registered under the laws of the Commonwealth of Pennsylvania. The following persons are so licensed and registered as Professional Engineers."

Southern Arizona Presidents



Past Presidents of the Southern Arizona Chapter got together recently for this picture. Shown, left to right, are: Charles B. Maguire, 1950 President; Gerald W. Irvin, 1951 President; John H. Stufflebean, 1949 President (the first the Chapter had) and Fred H. Jobusch, the current President.

Pennsylvania Society Obtains Rulings From State Attorney General

At the request of the Pennsylvania Society, several opinions were transmitted to the State Registration Board for Professional Engineers by the Attorney General's office in Harrisburg. These opinions, which more clearly establish the professional standing of engineers, are in essence:

1. In a small company, it is conceivable that the directing head may be both directing head and employee, and he should be registered.

2. In a larger company, *both* the directing head in charge of engineering activities *and the employees* who may be in *responsible* charge of phases of engineering, must be registered.

3. In a company of any considerable size, the hiring of a registered engineer to work under a non-registrant who is in charge of engineering, does not meet the requirements of the Act.

4. A duly licensed Professional Engineer retained as a consultant on a fee basis *for a specific engineering job* cannot be considered by a firm or corporation to be a directing head and/or employee of such firm or corporation in responsible charge of its activities in the practice of engineering.

Ernst Nominated By Monmouth-Ocean

The Nominating Committee of the Monmouth-Ocean Chapter of the New Jersey Society has named John A. Ernst as candidate for chapter president.

Associate Wanted

Structural Engineer, MIT graduate in Civil Engineering, registered as Professional Engineer in New York State and Connecticut, with office and small staff in New York City, 20 years experience domestic and abroad in steel construction, reinforced concrete and power plant design, seeks associate on partnership basis with contacts to increase business volume.

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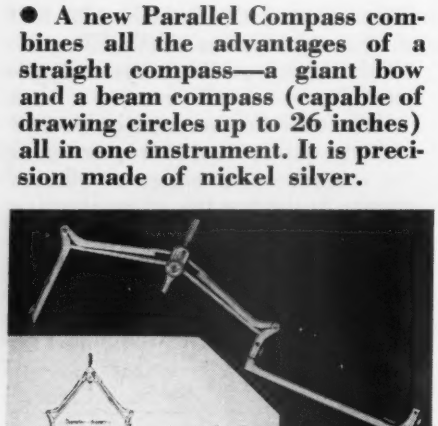
What's New

As a service to our readers, this column will describe briefly new product developments of general interest to professional engineers. For further information concerning these products, we will appreciate your filling in the coupon provided for this purpose, and mailing it to the American Engineer.

● A new Parallel Compass combines all the advantages of a straight compass—a giant bow and a beam compass (capable of drawing circles up to 26 inches) all in one instrument. It is precision made of nickel silver.



The construction of this new drawing instrument insures, automatically, parallel opening of the lower legs of the compass to whatever degree the compass legs are opened, without being forced to curve the knees of the compass.

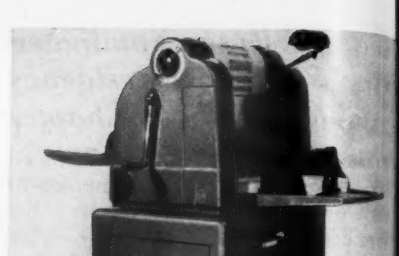
A screw on the head of the compass firmly locks the instrument in any position, so that circles of the same diameter can be drawn over and over again without any deviation. ***Item one.***

● Low cost material handling with Moto-Bugs is pictorially shown in a new 4-page bulletin.

Designed to meet many special handling problems, the Moto-Bug is equipped with full power forward and reverse through a directional transmission. The large steering wheel is connected directly to the dual rear wheel through a 3.6 to 1 gear reduction for effortless maneuvering. Its 33 inch width easily clears narrow aisles and doorways. Power is transmitted by V-belt and roller chain from the standard make 6 h.p. gasoline engine through an automotive type differential in the front axle for reliable 2-wheel drive. ***Item two.***

● Letters, forms, and illustrations are quickly and perfectly reproduced by a new duplicator, Model 160 Express Inker, presenting these features: positive ink control; a fresh surface of ink for each copy; inks in eleven different colors; low cost, speedy, color changing; no paper waste . . . good copies come instantly from newly affixed stencil; feed tray accommodates whole ream of paper; self-contained power unit direct-drive mechanism; finger tip speed control; automatic shut-off, counts up to 10,000 copies; thumb-wheel positioning of copy; die-cut and photographic stencil services, and printing area 8⅜″ x 13½″.

A mere press of a lever feeds the ink by vacuum pump to precision oscillating and revolving rollers. These combine to produce an inking coverage comparable to that of a regular printing press.



The feed table takes a ream of paper. An ingenious trip-bar arrangement separates the sheets thus preventing more than one sheet of paper from feeding through the machine at one time. The feed check automatically switches off the impression roller when paper is not fed through.

For an informative bulletin write for ***Item three.***

● Protecting buried pipes from corrosion with "Scotch" plastic tapes No. 21 and No. 22 is the subject of a new eight-page illustrated booklet.

It describes and illustrates both high speed machine and hand wrapping techniques for protecting natural gas and water mains, joints and leads from the corrosive effect of soil chemicals, oils and fats, stray ground currents and soil bacteria and fungi.

The booklet cites some of the problems resulting from pipe corrosion as well as actual case histories of instances where the wrapping methods described have been used. In addition, it gives tables listing the physical and electrical properties of the tapes. ***Item four.***

● A new 1952 catalogue on Flexicore prestressed concrete floor and roof slabs is now available.

Special features include: diagrams showing how Flexicore slabs are used with all types of construction; a simplified load chart; an explanation of how prestressing Flexicore slabs permits heavier loads on longer clear spans; and new ways to install heating systems, including hot water radiant and a warm air split system that combines circulating air with a radiant floor. ***Item five.***

● The No-Mar Fast Grip Toggle Clamp features a balanced de-

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sign for the provision of more positive gripping control and efficient operation. The clamp has a wide utility and diversified application. It is used on wood, plastic, veneer, and highly polished surfaces, and the vise like gripping action is applied and released with a one hand motion.

It is constructed of cold rolled steel stampings and a solid steel jaw cut from plate. The main body is finished with a heavy cadmium plate and the spindle member is removable and easily adjusted. Large rectangular faces equipped with masonite pads assure non destructive holding action. ***Item six.***

• A new invisible hinge offers a unique way to streamline and beautify building interiors and all types of products which require hinges. It has no protruding hinge butt and is completely hidden from view when doors or lids are closed.

The hinge operates on hardened steel roller bearings and is designed so that the body of the hinge partially supports the weight of the door. This helps prevent sagging, sticking, and misfitting.

It is available in a wide variety of weight-rated sizes for every conceivable type of installation and works equally well with either wood or metal. ***Item seven.***

• Get the facts and the time they occur with a new, extremely simple basic recorder. It is possible to record permanently without pen or ink, without photographic delay, and without inertia or delicate moving parts. The instrument records on a new supersensitive direct recording paper known as Alfax. The operation is simple and easy—simply plug Recorder into a 110 volt source, connect with a microswitch to whatever you wish to monitor and you get a permanent record of two actions plus the time the action took place. The magazine is light weight and compact so it can be used in any number of applications.

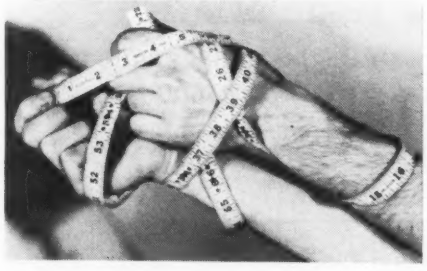
Basically the recorder is made up of the Magazine and Driving Unit. The Magazine is a self-contained unit consisting of recording electrodes, timing switch and paper reels. The paper reels hold an 8 days' supply of Alfax paper. The Magazine can be sealed and made tamper proof while recording and then be sent intact to any point for interpretation. The Driving Unit contains a synchronous motor with a pinion gear to engage and drive one of the paper reels. It also has 4 resistors and a rectifier tied into the 110 V. AC line through a detachable line cord. The resistors and rectifiers provide a direct signal of a few mils to mark the Alfax paper. ***Item eight.***

• Lapidolith is a patented chemical concrete hardener that makes concrete floors up to 10 times harder, dust-free with Bonded guaranteed results.

It is a liquid chemical hardener which, when applied to the surface of new or old concrete floors, penetrates the sub-structural pores to wearproof and dustproof the concrete. This action takes place through a chemical reaction with the lime and calcium carbonate in concrete to produce a close-grained granite-hard, vitreous topping that prevents traffic and trucking from tearing the concrete from its bedding. Voids in the concrete left by evaporating water are filled in, thereby preventing the formation of concrete dust and normal disintegration of the floors.

The low surface tension and powerful wetting capacity of Lapidolith allow it to react readily with the smoothest finished terrazzo, hardening and dust-proofing just as successfully as it does concrete. It is easy to apply—like washing the floor. ***Item nine.***

• A new bright white enamelled 6 ft. zig zag folding rule made of a special hardened and tempered alloy steel can be bent and twisted like a pretzel and yet will always spring back to its normal shape.



It can be used to take inside measures, measure pipes, rounds, and pulleys, as a straight edge to draw lines on paper or boards. It also extends rigidly for out of reach measurements.

The Indestructible Durall can be opened up on the job and left open while working, and accidentally stepping on it will do no damage—it will not bend or break. It does not have to be closed each time it is used to prevent breakage—a big time saver. ***Item ten.***

Professional News In Capsule Form

(Continued from page 4)

decisions in other states, evidently felt that registration by branch of profession amounted to an unreasonable exclusion of certain persons from the right to practice a chosen profession. The decision appears to be narrowed to this point only in view of the court's statement, "this Court well recognizes the power of the State under its general police power to regulate professions which will tend to provide competent men in the various professions and to avoid the direful consequences of ignorance, incapacity, deception and fraud." The decision is being appealed to the State Supreme Court.

A pending case in Tennessee is attracting considerable national interest, primarily raising the question of the proper line of demarcation between the practice of engineering and the practice of architecture. A registered engineer, engaged in residential house construction, was challenged as practicing without authority in the architectural field. A series of conferences between the state board and the state professional societies failed to resolve the problem and the engineer has now filed suit for a declaratory judgment to establish his right to continue his past practice. It is contended by the architects that under the Tennessee law architects have the sole legal right to design structures, including buildings. The engineers rest their case on the belief that the basic purpose of the joint architectural and engineering law was to insure that all structures affecting public health, safety, and welfare were designed either by a licensed engineer or licensed architect, and that a licensee has the right to practice to the limits of his competency.

The problem of overlapping jurisdiction between engineers and architects is being approached in New Jersey through the medium of suggested legislation which would create a special board to hear charges of illegal practice between the two professions. Under the proposal, no action to recover a penalty for the alleged illegal practice could be taken until the special board heard the case and determined that cause existed for the action. The special board would be composed of one representative each from the engineering and architectural state boards, and the engineering and architectural state societies, with the fifth member being the State Attorney General or a Deputy Attorney General.

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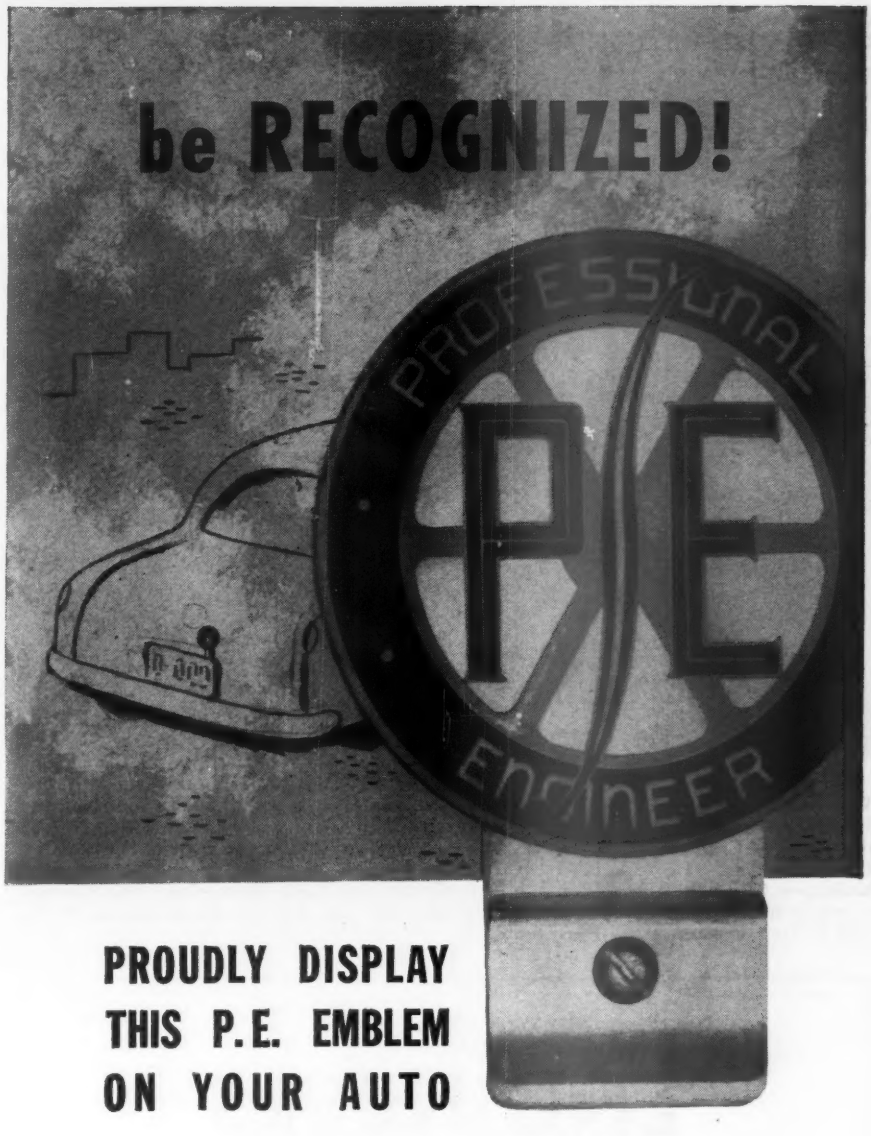

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Indiana Council Meets at Purdue

In the photo above, Radcliffe P. Cheeseman, P. E., Past President of the Anthony Wayne Chapter, Indiana SPE, left, and E. G. Hinshaw, P. E., President of the Indiana Society, stand before the NSPE display booth at the recent meeting of the Indiana Engineering Council's Engineering Exposition at Purdue University, Lafayette, Ind. Thousands attended the event to take part in the Engineering Guidance Clinic and hear such speakers as Dr. Charles F. Kettering. The Council is made up of Indiana engineering groups with Col. Chester Lichtenberg, P. E., NSPE Vice President, as President.

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POST OFFICE BOX P, OAK RIDGE, TENN.

Jobs

(*Continued from page* 11)

and these plans are laid for the coming five years or more.

The Radio Corporation of America, Robert E. McQuiston, Manager, Specialized Employment Division, Personnel Department, advises that RCA is in need of virtually all kinds of experienced engineers for the company's far-flung electronics activities.

In addition to working with radio and television, RCA engineers work with radar, servo-mechanisms, computers, transformer and coil design, navigational aids, technical sales and electronic equipment field service, as well as a long list of other activities.

"These positions open to experienced engineers are not emergency jobs. They offer life-long employment opportunities to engineers who expect more from their work than is provided by an ordinary engineering assignment," Mr. McQuiston said. "We believe that RCA offers some of the most challenging opportunities for engineers in the entire electronic industry."

"In addition to RCA's requirements for experienced engineers, we have a continuing requirement for graduate and post-graduate engineers who are just leaving engineering colleges and universities. These graduate engineers have access to RCA's Specialized Trainee Program which is recognized as one of the best in the industry," he pointed out.

Mr. L. A. Wetlaufer, Assistant Manager of the Personnel Division of the du Pont Company, reports of conditions as follows:

"Our observations lead us to believe that there are more openings for engineers in the chemical industry than at any time in recent years. We feel it is important to bring out that the chemical industry, because of its growth and increasing complexity, is today using engineers with a greater diversity of training than ever before. In addition to chemical engineers, large numbers of mechanical, electrical, civil, metallurgical and industrial engineers are in demand.

"In our own Company, it has been normal practice to recruit our engineers directly from the colleges. Today, however, with the vast increase in construction and production for defense purposes, it is necessary to employ large numbers of engineers with experience.

"It is also important to note that all levels of academic training are involved."—**End.**

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Fear

(*Continued from page* 14)

shall private property be taken for public use without just compensation; furthe:, the accused shall be informed of the nature of the cause of the accusation to be confronted by the witnesses against him, to have compulsory process for obtaining witnesses in his favor, and to have the assistance of counsel for the defense.

Here is a very potent combination. Here is something which sets out the rights of the individual that cannot be taken away by any arbitrary power. There shall be no restraint in religion and no building up of a state church, the right of assembly, free speech and free thought are guaranteed. This is a very potent concoction. The right to be let alone—certain rights are above men, even above governments. The possessor could claim his rights, publish his abuses, and expect those in authority to listen. Then the critics came forward.

THIS is too strong and too potent a beverage for farmers, mechanics, and workmen and for ordinary citizens. They will turn freedom into license. They will destroy themselves when they undertake to exercise such freedoms. But they did not destroy themselves. They occupied the land, they moved their families in; they moved Westward and ever Westward until they reached the Mississippi Valley; then they moved on across the mountains to the Pacific Ocean; always they were building homes, schools, churches, and universities. Finally the land was occupied, and the land frontiers were gone. Cities grew up all over the valleys and the plains; industry followed the covered wagon to the far reaches of the land. Elbow room seemed to be gone; when one moved another must give way.

Decades passed in rapid succession; business became very big; labor unions became bigger and bigger; new prophets arose in the land. They said that the old freedoms must be curtailed and that people must have more and more protection; they must look to their government for employment and for guarantees concerning wages; that somehow the government is the only possible source of security. In many lands the people have traded their liberties for a type of security which is proving that they have sold their birthrights for a mess of pottage. Some are advocating a welfare state, a paternal government, a planned society, forgetting that the strength of a nation depends upon the freedom of its individuals.

Let me again emphasize that science and invention are the new frontiers; and, that there is a special climate for their growth and maturity. They have never grown in slavery, or in a planned state, or where there is restraint on the human imagination.

Their climate is freedom of the individual; their atmosphere is worth of the individual; their sunshine is confidence in the individual, and their soil is a democratic society. Were I to take time to trace the growth of science we would find that it had its birth in those nations which fostered freedom, which believed in the worth of individuals, and which spent its substance in their protection. The growth of science has paralleled the growth of the democratic process, and if we are to have its new frontiers we must see to it that no one denies us the freedman's brew on which it grows.—**End.**

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See Page 16

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